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Common Misconceptions in Regard to Dermatology

MARION B. SULZBERGER

NEW YORK CITY

It is understandable, and perhaps inevitable, that a specialist should appreciate and appraise his particular field more highly than any other medical man. I believe, however, that when it comes to dermatology, the gap between the appraisal of the specialist and the opinions of others is much wider than usual, and that the reasons for this divergence of opinion merit and require some explanation. I hope that this paper may lead some of you to revaluate the factual basis for your concepts concerning dermatology.

No one can deny the importance of skin diseases as leading causes of sickness and disability. This is clear, for wherever dependable figures are available, for example, in the armed forces, they show that well over 10 per cent of all disability is due to skin diseases; also, in civilian medicine, there are the generally accepted figures showing that from 60 per cent to 80 per cent of compensable occupational disease is skin disease. The latest statistics available in New York State (exclusive of New York City) show that, out of a total of some 13,000 registered cases of cancer, slightly more than 1,500 were cancers of the skin and lip. Moreover, very few people seem to be aware of the fact that skin cancers cause more deaths than, for example, cancer of the brain.

But I believe that the poor estimation of dermatology, which prevails in many quarters, is based not so much on failure to recognize high incidence of skin diseases, but rather upon more fundamental misconceptions regarding the problems and contributions of dermatology.

NOMENCLATURE

Dermatologists often hear such remarks as, "You use such strange and foreign-sounding names," or, "You use so many eponyms." Most non-dermatologists apparently think that our nomenclature is full of superfluous adjectives, which are intended to obscure rather than to clarify, and that dermatologists would rather give cumbersome names than study the basic mechanisms of the disease.

Admittedly, nothing can be more irritating than the needless use of foreign-sounding phrases which are meaningless to many a listener, and which connote an assumption of superiority on the part of the speaker. Is it true that dermatologists are guilty of this practice?

The skin is a large organ—indeed, the largest organ—with many complex structures and complicated functions. It is exposed to every

From the New York Skin and Cancer Unit, New York Postgraduate Medical School and Hospital.

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influence coming from within and from without. It is only natural that the pathologic changes, caused by varying exogenous and endogenous agents acting upon the delicately adjusted cutaneous structures, should give rise to a great variety of distinctive pictures of disease. Furthermore, in contrast to every other organ, the tissues and specialized structures of the skin are spread over the surface and are entirely accessible to the observer's vision, touch, and other senses. Perhaps if the liver were as accessible to exact observation and description, there might be as many recognized forms of hepatitis as there now are of dermatitis. But despite these obvious reasons for a richer descriptive terminology, I do not think that dermatologic nomenclature is much more detailed than that of other specialties or of medicine in general.

For every long or eponymic name of a skin disease, I think I could supply one or two similarly constructed terms for some other disease. Admittedly, "xeroderma pigmentosum," "purpura annularis telangiectodes," "Schamberg's disease," and "Majocchi's disease" sound formidable. But what of "retinitis pigmentosa," "subacute abacterial endocarditis," "Hand-Schüller-Christian's disease," "postencephalitic Parkinsonian syndrome," "Landouzy-Dejerine's fascioscapulo humeral atrophy," and "Osler-Weber-Rendu-Goldstein familial hereditary telangiectasia"?—to mention only a few.

Why is it, then, that dermatologic terms seem especially strange and complicated to physicians outside the specialty? In my opinion, the present system of teaching medicine is, to a large extent, at fault. From the very beginning the medical student is made acquainted with a wealth of terms of general medicine, so that such names as "Hand-Schüller-Christian's disease" and "Duchenne-Erbs paralysis" become the familiar objects of his world—of his talking, writing, thinking, and dreaming. Not so with poor, neglected "dermatitis exfoliativa" or "purpura telangiectodes," which are suddenly thrust upon him for an hour or two for a few weeks during his overcrowded third or fourth year. His overburdened mind and bursting vocabulary are inclined to reject the additional

MARION B. SULZBERGER

burden. And throughout his life, on the rare occasions on which he is compelled to read or hear these dermatologic terms, the physician continues to regard them as strange cacophonies, and is inclined to suspect the man who uses such fancy language of a desire to impress, or even to confuse in order to hide his ignorance of his field.

The only remedy I can see for this situation is the introduction of dermatologic diseases from the very beginning of the medical curriculum and the proper integration of instruction in dermatology with that in other fields of medicine. If this were done, not only would there be the advantage of making dermatologic nomenclature familiar to the student, but also it would soon be found that diseases of the skin have their proper place as introductory to the study of medicine, and offer unparalleled opportunities for teaching basic medical sciences —the bacteriology, immunology, pathology, biophysics, and biochemistry of disease, and the mechanisms of therapy and healing.

METHODS OF TREATMENT AND RESULTS

Even more important than the misconceptions regarding dermatologic terminology is the widespread belief that treatment of skin diseases has less scientific foundation and is less satisfactory than the treatment of diseases of other organs.

If the accusation "unscientific" is meant to indicate that dermatologists do not know the *exact* manner in which most of their common remedies exert their beneficial effects, then dermatology is no more and no less guilty than any other branch of medicine. Does the cardiologist who uses digitalis know the precise manner in which the conductivity of the heart is reduced by this drug, any more than the dermatologist understands just how sulfur exerts its beneficial effects in seborrheic dermatitis or acne? And the discovery and understanding of the antibacterial action of penicillin are on precisely the same scientific level as the discovery and comprehension of the antieczematous effects of coal tar. Just as a wide-awake and well-trained Fleming happened to note the inhibition of bacterial growth in the vicinity of the contaminating colony of penicillium, so did Dinde, in Lausanne, happen to note that his dog's eczema cleared up promptly after the animal had rolled in a puddle of coal tar at the edge of the road. And ever since, dermatologists have been studying the action of tar—fractionating, analyzing, and modifying its ingredients, just as others in medicine have been studying, analyzing, and modifying the extracts known as penicillin. As I see it, there can be no doubt that the dermatologic use of common remedies—sulfur, mercurials, resorcinol, arsenic, menthol, and others—is, in point of scientific foundation, wholly parallel to the use of quinine in malaria, of salicylates in headaches and fever, of morphine, bromides, and so on. In short, when one really compares the therapeutic armamentarium of the dermatologist with that of his colleagues, the one appears no whit more scientific than the other.

If the criticism "unscientific" is leveled, not at the general knowledge and basis of therapy, but at the manner in which the individual practitioner selects and uses the available measures in a given case, then I conclude that this criticism is peculiarly unjust when applied to a competent dermatologist. For, as a natural consequence of the extraordinary accessibility of the lesions, the dermatologist is able to employ a most carefully controlled and scientific form of therapy. First of all, his therapy is exquisitely eclectic, employing everything that is known and available in medicine and surgery. Dermatology makes use of virtually every modern systemic form of medication and of every technic of surgery and electrosurgery, as well as of physical agents such as cold, heat, roentgen rays, radium, and products of atomic fission. In addition to all these implements of general medicine and surgery, the dermatologist can avail himself of a highly specialized, but generally precise, system of *local* treatment. The active ingredients of his external remedies are chosen on the basis of years, decades, and often centuries of testing their effectiveness in a given condition. The concentrations and quantities of the ingredients are carefully adjusted to the requirements and tolerances of the particular site and patient. And the combinations of ingredients and vehicles are selected to produce maximal therapeutic effects and minimal side-effects, as well as the required rate and depth of penetration, speed and persistency of action, and ease and feasibility of employment.

More than any other specialist, the dermatologist is dependent upon the patient's cooperation as executor of the prescribed treatment. Therefore, having prescribed a scientifically compounded remedy, the well-trained dermatologist—fully aware of the properties and purposes of each ingredient, its color, consistency, odor, solubilities, physical and chemical action—proceeds to enlighten the patient, teaching him how the remedy is to be applied and removed, and explaining what effects and possible side-effects may be encountered. Then, at appropriate intervals, both physician and patient observe the remedy's effects, possibly in

a comparative fashion by contrasting the results achieved with those produced by other remedies on similar lesions in other areas. When indicated, the physician changes the nature or concentrations of the active ingredients and of the vehicle, and modifies his prescription in the direction suggested by the effects observed.

I submit to you that the foregoing is a true description of the procedures followed by the competent dermatologist, and that it constitutes a therapeutic approach which is well founded on experience, reason and science.

Why, then, does the non-dermatologist so commonly believe that dermatologic methods of treatment are unscientific and unsatisfactory? It seems to me that some, perhaps a good deal, of this prejudice has origins similar to those which I described in connection with the matter of nomenclature. The medical student and the young physician receives painstaking instruction in the therapy of diseases of organs other than the skin. From the beginning he learns the names, pharmacology, and toxicology of the common drugs, and writes them down in prescriptions, and studies the theory and practice of their use, until at last the pharmacopoeia of general medicine becomes second nature to the average physician. Not so with dermatologic therapy, a "new" therapy, often thrust upon the student without the stimulating associations of historical development, pharmacologic experiments, or repeated practical experiences. It is not astonishing, therefore, that most physicians throughout their careers reject this inadequately presented form of therapy as unwelcome and, in addition, entirely without scientific foundation.

Your next question may well be—if dermatologic therapy is so well founded, and the dermatologic lesions are so accessible—why is it that so many physicians and laymen believe that the results achieved by the skin specialist are, on the whole, unsatisfactory? Every one of us has heard the excruciatingly amusing epigram, "Your patients never die, and never get well," which helps the misconception along.

I have been thinking about this whole question for some time, and am inclined to believe that this misconception is due essentially to the following reasons. Since the beginning of the era of modern immunology, bacteriology, and chemotherapy, the understanding and management of disease have advanced at breath-taking speed. Somewhat dazzled by the brilliance of the actual achievements, and more confused by the high-pressure public relations work on behalf of daily medical "discoveries," a large segment of both the medical and lay public has been inclined to lose sight of the still unplumbed depths of medical ignorance. For, despite the incalculable progress of recent years, many of the most important ills of man are still clothed in mystery, and are inaccessible to any known therapy. To name only a few—the common cold, most headaches, most kinds of heart trouble, hypertension, many arthritides, kidney diseases, blood dyscrasias, cancers.

Needless to say, dermatology also has its quota of incurable and even unmanageable diseases, for the skin is a living structure, fully as delicate in its mechanisms and as manifold and mysterious in its processes as the brain or kidney or any other organ. However, when the skin is affected by a disease for which medical science has found a promising therapeutic approach, that form of skin disease will usually be more readily manageable than if the identical affection were seated in some other organ. Tuberculosis of the skin is, as a rule, more readily cured than is, for example, tuberculosis of the genitourinary tract or lungs; the same is true of such diverse conditions as many types of tumors, staphylococcic, streptococcic, and virus infections, and so on. Thus it must become quite apparent to all who care to examine the question that the prognosis for skin diseases and their response to modern therapy are, by and large, somewhat better than in other diseases. This should be construed not as a particular feather in the cap of the dermatologist, but rather as the natural consequence of his good fortune in possessing superior opportunities for earlier and more accurate diagnosis and for more direct application of scientific treatment.

As I see it, dermatology has acquired its unenviable reputation for therapeutic disappointments largely because of two factors—first, due to the *inordinately high hopefulness* and the *expectancy of cure*—on the part of both physician and patient—where skin diseases are concerned; and, secondly, the extraordinary degree of anguish which every human being experiences whenever his ego is attacked by personal disfigurement. The expectancy of cure is too high because skin lesions are often without danger, and are therefore often regarded as insignificant; and also because these lesions, being open to direct therapeutic applications, are expected to yield to treatment easily.

A PATIENT with heart disease or kidney disease or hypertension does not, usually, expect a cure when he goes to his physician. And this patient will hardly blame his doctor or the science of medicine merely because the exact cause of his trouble is unknown, or because an immediate and permanent cure is not forthcoming. But the patient afflicted with chronic eczema of the hands or scaly patches of psoriasis is likely to be shocked when told that the cause of his trouble remains a mystery, and is inclined to be despondent, not say indignant, when a rapid and lasting cure cannot be promised. The individual suffering from diabetes, high blood pressure or some disease of the heart, kidney, liver, stomach, or joints will, as a rule, expect to "treat" the condition, and will resignedly follow a strict regimen in order to remain comfortable and to continue to live. The usual patient of this kind has heard that his baffling disease is being studied by scientists all over the world; that great men, famous institutions, and prodigious sums are concentrated on a solution of his problems, but that nothing like a cure is as yet available.

But the patient with lupus erythematosus or psoriasis or chronic eczema has a different attitude. More often than not, this patient informs the skin specialist that a prompt and permanent cure is expected. He simply cannot believe that such a thing as a skin disease should constitute a baffling problem. He chafes at the endless continuation of palliative measures. Soon he openly resents the fact that no specific relief is forthcoming; and, in his disappointment, he arrives at the conclusion that dermatologists are less competent than other practitioners of the healing art, and that dermatology is less advanced than other branches of medical science. Though unfounded, his conclusion is quite comprehensible, and receives some support from the fact that neither the press nor the radio tells him of an army of men and an array of institutions working towards the solution of his skin problems.

Nor can the dermatologic patient very well console himself with a false idea of a cure or of improvement. It is only too easy for him to see that those lumps on the end of his nose are still there, or that the redness and scaling are just about as they were a week ago. And he would hardly be consoled if he were somehow able to see that his neighbor's hobnail liver was as lumpy as ever, despite years of the best specialistic care; or that the atheromatous patches in his boss's aorta had grown larger, despite years of a rigid regimen and everything that money could buy in medical treatment.

CONTRIBUTIONS TO MEDICAL SCIENCE

Some of my remarks concerning dermatologic nomenclature and topical therapy may have served only to strengthen your impression that dermatology is a strange and remote specialty, and that the dermatologist thrives in a rarefied atmosphere, separated by airtight partitions from the rest of the profession. But, of course, this is by no means the case. And I should like to remind you once again that dermatologic diagnosis and therapy must constantly avail themselves of every modern approach known to medicine and surgery.

More important still, any serious attention to the question will reveal that studies of the skin and its reactions have contributed substantially to the discoveries and advances made in medicine as a whole. Examples come crowding to

my mind from every field of medical endeavor. In cancer and carcinogenesis, the most fruitful modern approaches stemmed from the recognition of the causes of such *skin* tumors as arsenical cancers, chimney-sweeps' cancer, cancers due to dyes such as aniline and scarlet red or their contaminants, cancers due to trauma, to burns, light, roentgen rays, and radium. Also, the research work of the Japanese, and of Br. Bloch and the Swiss school with experimental tar cancers of the skin of mice, led to Br. Bloch's discovery and separation of the individual carcinogenic fractions of tar distillates; this development, together with subsequent isolation by Cooke of modern chemical carcinogens, dibenzanthracene and methyl-cholanthrene, ushered in the new era of experimentation with carcinogens, including the use of the 17-keto-steroid compounds.

IN THE domain of infections, too, dermatologic research has often led the way. Let me only recall that the dermatologist Neisser discovered the gonococcus; that the dermatologist Hoffman, together with Schaudinn, discovered the spirochete of syphilis; and that, of course, many of the dyes and many staining methods and culture media still used were also introduced by dermatologists (Neisser's bacteriologic stains, Unna-Pappenheim's histochemical stains, Sabouraud's mycologic media, etc.). The immunology of infections owes much of its scientific foundation to observations of the skin's resistance or susceptibility to infections and reinfections, and to intracutaneous injections of extracts of micro-organisms. Jenner's epoch-making discovery of smallpox vaccination (1798); Koch's "fundamental experiment" and observations of tuberculin skin reactions; Schick's magnificent contribution of the toxin skin test and diphtheria immunization, and the recognition of the role of hypersensitivity in asthma and hayfever and hives; and Wilhelm Frei's clarification of the entire picture of that protean disease known as lymphogranuloma venereum—these are only a few of the better known examples. Less well known are the dermatologic studies in tuberculids and trichophytids, and in the chemistry and immunology of tuberculins and trichophytins; we must not forget the early recognition of the immunologic role of the polysaccharide fraction (Bloch, Labouchère and Schaaf, 1924).

It is also evident that few outside of the specialty realize that dermatologists were among the first to pay much attention to the concept of disease due to *foci* of infection. Let me remind you that it was the research work of Darier in tuberculids and with tuberculin, and of J. Jadassohn in trichophytids and with trichophytin, which introduced the concept of the role of foci of infection, and established the allergic nature of many disease processes due to dissemination of infectious agents and their products emanating from a distant focus.

From Jenner and Koch to Frei, Schick, Schwartzman and Rous, the use of the skin as a test-tissue in studying the effects of infection and reinfection, and of the introduction of products of micro-organisms and virus, has served to secure the very foundations of our present knowledge concerning susceptibility and resistance to infectious disease. Thus, the study of skin reactions and the observations of dermatologists generally have not only made contributions to our understanding of immunology in infections but to the study of immunology as a whole.

Drug reactions, those common and most instructive forms of disease, are now beginning to receive their merited attention from the profession as a whole, thanks to the widespread use of the sulfonamides and penicillin. Yet almost every known form of reaction to drugs had been not only recognized but accurately described and intensively studied by dermatologists for a long time. Indeed, little has been added to the basic knowledge of drug reactions, as set forth in the dermatologic literature before the turn of the century (e.g., Price Morrow's monograph and J. Jadassohn's masterly expositions, in 1895).*

*See for example "A contribution to the study of dermatoses produced by drugs," Selected Essays and Monographs. London: the New Sydenham Society, 170:205, 1900.

In the general sphere of sensitization to simple chemical compounds, dermatologists have preceded all others, both clinically and experimentally. Dermatologic investigation of skin sensitization by such chemicals as mercurials, arsenicals, bromides, iodides, phenolphthalein, paraphenylendiamine, azo dyes, and local anesthetics, has supplied countless clarifying facts and concepts; and the first use of simple chemicals in producing sensitization in laboratory animals must be credited to the dermatologic studies of J. Jadassohn and his school, of Wilhelm Frei and co-workers (arsphenamines), R. L. Mayer (paraphenylendiamine), and W. Jadassohn (phenylhydrazine). These studies paved the way for the splendid achievements of K. Landsteiner, Merrill Chase, and others.

I cannot recite the many other pertinent examples. In whatever direction one looks, one will see—provided one is willing to see—the scientific facts gleaned through the study of the skin. Unna's gigantic contributions to the budding science of histochemistry, Bloch's very early recognition of the role of enzymes in the human tissues (dopa-oxidase and melanin formation), the exemplary studies of Sir Thomas Lewis and his school, and of Landis and others on the minute blood vessels of the skin and on histamine and histamine-like effects; and now the work on the "anti-histamine" drugs, the studies of cutaneous water-metabolism, heat regulation, secretory functions, self-sterilizing powers, responses to psychogenic stimuli—these are but a few more examples of the real and intimate connection between studies of the dermatologist's organ and the advancement of general medical and scientific knowledge.

In short, dermatology—that ugly duckling of American medicine—has contributed its full share toward the advancement of knowledge. And it is now in a position to make further great contributions, provided its vast potentialities are recognized and its unique opportunities fully employed. To paraphrase again, I should like to say for American dermatologists, "Give us the facilities, and we will do the job."

EARLY RADIOGRAPHY

Surgeons, hampered in the use of the x-ray in private houses, where there was no electric power, devised the scheme of obtaining their power from the storage batteries of their automobiles. The wires were carried directly from the automobile in the street to the patient's room.

Photo from: The Bettmann Archive

Pancreatic Fistula Following Surgery of Pancreatic Cyst

REPORT OF A CASE TREATED BY PANCREATOJEJUNOSTOMY

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Because of the relative rarity of pancreatic cysts, the subject has merited only an occasional reference in the literature and scant attention in the textbooks. Congenital cystic disease of the pancreas is an uncommon pediatric entity of unknown etiology. Retention cysts of the pancreas may be due to either an obstruction of the duct or compression on a duct from without. Cystic neoplasms may be congenital or acquired, and include the dermoids, teratomas, cystadenomas, and epitheliomas. Pseudocysts resulting from necrosis or interglandular hemorrhage can also occur. Pancreatic duct obstruction and trauma have been listed frequently as aggravating factors in the production of pancreatic cysts. Many physicians consider an associated and pre-existing pancreatitis as an etiologic agent.

The treatment of pancreatic cysts is surgical and depends largely upon the degree of adherence of the cyst wall to adjacent vital structures. Ideally, complete excision is the method of choice. If this is not feasible, however, either drainage with marsupialization or, as has been recently advocated,[1] an immediate anastomosis of the cyst to a portion of the small bowel must be performed.

Not infrequently a pancreatic fistula develops as a postoperative complication following marsupialization of the cyst. With the establishment of a persistent fistula, a gradual physiologic imbalance soon becomes evident. Very detailed observations on the flow of pancreatic juices from pancreatic fistulas have been made by Wiper and Miller.[15] They correlated an increase in the plasma proteins, hematocrit and hemoglobin with dehydration and a corresponding loss of chlorides and sodium. Zinninger observed a reduced blood count and also a lowered plasma protein level in the one case of pancreatic fistula he reported.[16]

Various attempts have been made to reduce the amount of drainage from an exteriorized pancreatic sinus. Comfort and Priestley found that a high-fat, high-protein, low-carbohydrate diet markedly reduced the flow.[6] X-ray therapy, sclerosing solutions, and curettage have all been tried with varying degrees of success. Correction of the fluid and electrolyte balance, transfusions to combat the anemia, and supplemental protein therapy all tends to restore the patient to an optimum physical state and to encourage closure of the sinus tract.

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Surgical intervention for persistent pancreatic fistulas following pancreatic cysts is a relatively uncommon procedure. Of the 26 cases reported in the literature in the last decade (see all references except 2 and 15), 13 closed spontaneously; this is probably the most common result when ideal conditions for healing exist. One case was operated on a second time and the sinus tract completely resected; technically, this procedure is a difficult one and has generally been unsuccessful. Four cases were reported cured with an anastomosis to the stomach. Here, the question has been advanced as to whether or not it is advisable to transplant a draining pancreatic sinus into the stomach since the glandular ferments are thereby lost in the lowered gastric *p*H. Especially would this be true if the sinus drained from the head or body, or both, of the pancreas.

Kirschner,[9] as early as 1929, reported a successful pancreatoduodenostomy for persistent pancreatic fistula. In 1937 the details of pancreatojejunostomy were described, and since then, this procedure has been commonly employed.[10] If the sinus tract has a small opening, a purse-string type of implantation is done; if the tract has a wide opening, an end-to-side anastomosis is recommended.[2] The important complication of pancreatojejunostomy is obstruction of the implanted tract with reformation of the cyst.

M. A. MICHAEL

CASE REPORT

A white male, 52 years old, was admitted on January 22, 1947, because of a pancreatic fistula which had been present for the preceding eight months. Two years before his admission he first had had attacks of abdominal pain, for which he was hospitalized in February, 1945, and put under observation, but no treatment was started. Because of continuous pain and the presence of an abdominal mass, he was again hospitalized in May, 1946, and an exploratory operation was performed. A large pancreatic cyst was encountered near the head of the pancreas; this was drained and marsupialized. Several months later a catheter was inserted into the fistulous tract to facilitate drainage; this was still in place at the time of admission to this hospital.

The patient remained relatively asymptomatic, except for the constant daily drainage of approximately 200 cc. of clear, colorless fluid from the sinus opening. There was little or no excoriation of the surrounding skin. Bowel movements were frequent (4 or 5 a day) and were described as frothy in nature. Laboratory examinations revealed a hemoglobin of 85 per cent with 3,950,000 red blood cells and 8,000 leucocytes, with a relative lymphocytosis. The serum amylase was reported as 98 units. Total plasma proteins were given as 5.02; blood chlorides as 450 mg. per cent. An analysis of the drainage revealed a predominant presence of amylase to the extent of 200 mg. per cent.

A lipiodal injection of the sinus tract showed that it proceeded rather irregularly from the anterior abdominal wall to within 4 cm. of the anterior vertebral margin. The patient was

placed on an antidiabetic diet and was given small doses of ephedrine sulfate and sodium bicarbonate. In addition, he was given large amounts of protein both orally and parenterally. One month after admission (nine months after the original drainage and marsupialization) the plasma proteins showed a substantial increase from 5.02 to 6.07 and the hemoglobin was reported at 14 gm. or 88 per cent with 4,310,000 red blood cells, but the amount of drainage had decreased only slightly. Two attempts to inject the tract with sclerosing solution had proved unsuccessful.

On February 26, 1947, operation was performed. The fistulous tract was carefully dissected down to, but not through, the gastrocolic omentum. A No. 16 catheter was then inserted into the fistulous opening and maintained in place by a black silk ligature through the tube and surrounding the sinus tract. Here, because of the large cuff of tissue, the original Lahey technic was abandoned. With the tract and catheter held in place by stay sutures, a double row of interrupted sutures (instead of the purse-string suture) was made, thus joining the jejunum with the sinus tract.

The patient made an uneventful postoperative recovery. The abdominal incision healed slowly but completely; all blood chemistry and liver function tests were within normal limits. Bowel movements had returned to 2 or 3 a day and were of normal color and consistency. Accordingly, discharge from the hospital was granted on April 23, 1947.

T. V. FRANK

CONCLUSIONS

1. Pancreatic cysts are uncommon occurrences. The accepted methods of treatment are (a) excision, (b) drainage and marsupialization, and (c) immediate anastomosis to a portion of the bowel.

2. The most common complication following drainage and marsupialization of a pancreatic cyst is the establishment of a persistent pancreatic fistula. A large percentage of these close spontaneously. If spontaneous closure does not occur within a reasonable time under supportive medical treatment, a transplantation of the fistulous tract into the bowel is considered necessary.

REFERENCES

1. Adams, R., and Nishijima, R. A.: Surg., Gynec. & Obst. 83:181, 1946.
2. Braunschwig, A.: Surgery of Pancreatic Tumors. Mosby, 1942, pp. 164-82.
3. Blinov, N. J.: Vestnik khir. 56:249, 1938.
4. Carter, R. F., and Slattery, L. R.: S. Clin. North America. 27:411, April 1947.
5. Chapman, C. L.: Brit. J. Surg. 28:633, 1941.
6. Comfort, M. W., and Priestley, J. T.: Proc. Staff Meet., Mayo Clin. 18:409, 1943.
7. Duncombe, C.: Mém. Acad. de chir. 65:64, 1939.
8. Edwards, H. C.: Lancet. Vol. I, No. 137, 1942.
9. Kirschner, B.: Beitr. z. klin. Chir. 147:28, 1929.
10. Marshall, S. F. and Lahey, F. H.: New England J. Med. 218:221, 1938.
11. Miller, J. M. and Wiper, T. B.: Ann. Surg. 120:852, 1944.
12. Pinkham, R. D.: Surg., Gynec. & Obst. 80:225, 1945.
13. Rose, B. T.: Brit. J. Surg. 33:93, 1945.
14. Soderland, G.: Acta med. Scandinav. 170:685, 1946.
15. Wiper, T. B. and Miller, J. M.: Ann. Surg. 120:52, 1944.
16. Zinninger, M. M.: S. Clin. North America. 25:1162, 1945.

Spontaneous Rupture of the Esophagus

REPORT OF A CASE WITH IMMEDIATE DIAGNOSIS AND SUCCESSFUL SURGICAL REPAIR

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SPONTANEOUS perforation of the normal esophagus is a rare event. Approximately 60 cases have been recorded in medical literature. Ante-mortem diagnoses have been made 14 times, and most of these diagnoses were made in those instances in which the patients survived the first few hours after the onset of the illness. Spontaneous rupture of the esophagus is such a dire catastrophe that very few of the patients have lived more than forty-eight hours. In only three instances has the diagnosis been made sufficiently early to permit surgical exploration of the thorax with repair of the torn esophagus. The patients reported by Collis and his associates and by Foggitt lived for only a few hours after operation. Kinsella's patient seemed to be well on the road to recovery when he succumbed to a pulmonary embolus on his eighth postoperative day. Four instances of survival after spontaneous rupture of the esophagus are recorded, and three of these were late cases in which recovery followed drainage of empyema and subsequent sealing off of the esophageal fistula. A very brief account of the fourth case was given by Cummings. The patient was a man 50 years of age with subcutaneous emphysema and bilateral hydropneumothorax. He was operated on by Dr. Overholt of Boston several days after the esophagus had ruptured. Cummings stated that the patient recovered.

The case here presented is of unusual interest. We were able to observe the dramatic sequence of events which characterizes a spontaneous rupture of the esophagus. To our knowledge this is the only reported case of true spontaneous perforation of the esophagus in which an immediate diagnosis was followed by successful transthoracic repair of the torn esophagus with recovery of the patient.

REPORT OF CASE

A white man, aged 39 years, became acutely ill on May 17, 1947. For forty-eight hours prior to the onset of this illness he had been drinking heavily and had eaten little or no food. He had consumed a large amount of liquor the night before and had fallen into a drunken sleep about 2:00 A.M. He awoke late the next morning and was very thirsty. At noon he drank 2 quarts (2 liters) of cold milk. Some upper abdominal discomfort developed. At 1:00 P.M. he drank a large glass of milk. He became nauseated and began to vomit and retch vio-

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lently but was unable to empty his stomach. Suddenly a very severe pain developed in the lower substernal region, the epigastrium, and the lower thoracic portion of the spinal column. A physician was called, who found the patient writhing in pain, yelling, and tossing about in bed. A ¼ gr. (0.016 gm.) of morphine sulfate and 1/150 gr. (0.00043 gm.) of atropine were given without perceptible relief of pain. The patient was sent to a hospital by ambulance.

Physicians at the hospital found the patient suffering from intense pain, which was most severe in the back but also involved the left side of the thorax and the substernal region. He was cold and clammy and rather markedly cyanotic. His pulse rate was 126 beats per minute. The blood pressure was 140 mm. of mercury systolic and 80 diastolic. Examination was difficult because the patient groaned and tossed about continually. No breath sounds could be heard over the left hemithorax. A second hypodermic injection of morphine sulfate failed to relieve the pain. A nasal tube was passed into the stomach because the presence of a perforated viscus was suspected.

Roentgen examination of the thorax revealed left hydropneumothorax (Figure 1). The left lung was collapsed, and fluid was present up to the level of the sixth rib posteriorly. Leukocytes were found to number 18,500 per cubic millimeter of blood.

A clinical diagnosis of spontaneous rupture of the esophagus was made, and exploration of the thorax was advised despite the patient's critical condition. The patient was brought to the operating room approximately three hours after his pain developed. Nitrous oxide, ether, and oxygen were administered. The following is a description of the surgical procedure: "A curved posterolateral incision was made on the left. A long segment of the sixth rib was resected and the pleura was opened. There was a large quantity, at least 2 quarts (2 liters), of curdled milk, gastric juice and bile. The pleural surfaces were intensely irritated and inflamed and the lung was completely collapsed. The pleural space was evacuated and a rupture of the esophagus about 3 or 4 cm. long was found just above the diaphragm. The left phrenic nerve was crushed to paralyze the diaphragm. The opening in the esophagus, which was a vertical tear, was closed with three rows of catgut. The pleura was brought across for additional protection. The operative site was washed again and I believe completely emptied of all its contamination. The lung was inflated. One catheter was inserted anterolaterally at the fourth interspace, one at the eighth interspace posterolaterally and one at the seventh interspace into the mediastinum itself for temporary closed drainage. A nasal tube was inserted to provide a means of postoperative feeding. Prognosis is very poor because of extensive mediastinitis and pleural infection."

After the operation the patient remained in a critical condition for approximately forty-eight hours. Cyanosis persisted, and the systolic blood pressure remained very low. His

condition was improved with a transfusion of 500 cc. of whole blood. As he gained strength, he became very restless and uncooperative. These manifestations were controlled by the intravenous administration of 5 per cent alcohol given with glucose and saline solutions. On the third postoperative day the patient pulled out his nasal tube. Four days after his operation administration of sips of water was begun and the oral administration of fluids was increased. On the eighteenth postoperative day bland foods were permitted and were tolerated satisfactorily.

Immediately after the operation the intramuscular administration of penicillin and streptomycin was instituted. Thirty thousand units of penicillin and 0.25 gm. of streptomycin were given every three hours for ten days after operation. Drains were removed from the thorax on the seventh day after operation. The patient's temperature varied from 100° to 102° F. for ten days after operation. After the thirteenth day he was afebrile. No infection occurred in the mediastinum or pleural space, but the external incision became infected and required superficial drainage. The patient was dismissed from the hospital on the twenty-first postoperative day.

This patient has been followed carefully since his dismissal from the hospital. He has gained in weight and strength and is back at work. He has not experienced dysphagia, and the roentgenographic examinations made after he had swallowed a barium meal (June 30, 1947) showed surprisingly little deformity of the lower part of the esophagus (Figure 2). The left hemidiaphragm was elevated and immobile and there were multiple pleural adhesions in the lower portion of the left pleural space. At the time of this writing, more than three months since the patient left the hospital, he is leading a normal and temperate life.

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COMMENT

It is of interest that this patient underwent a complete examination at the Mayo Clinic in February 1946, because of vague digestive symptoms. He had had some nausea and epigastric burning. Roentgenographic studies of the esophagus and stomach gave negative results at that time. It was felt that his symptoms were on a functional basis and were probably related to his excessive use of alcohol.

CLINICAL ASPECTS

Why does the normal esophagus rupture? This is a difficult question to answer. Most authorities feel that a tremendous increase of intraesophageal pressure is responsible for the split. In violent vomiting and retching it is probable that the muscular sphincter at the cricoid level of the esophagus fails to open, thus permitting the overdistention of the esophagus with regurgitated contents. The esophagus ruptures at its weakest point, just above the cardia.

A review of many of the case reports reveals a striking similarity in the history, the phys-

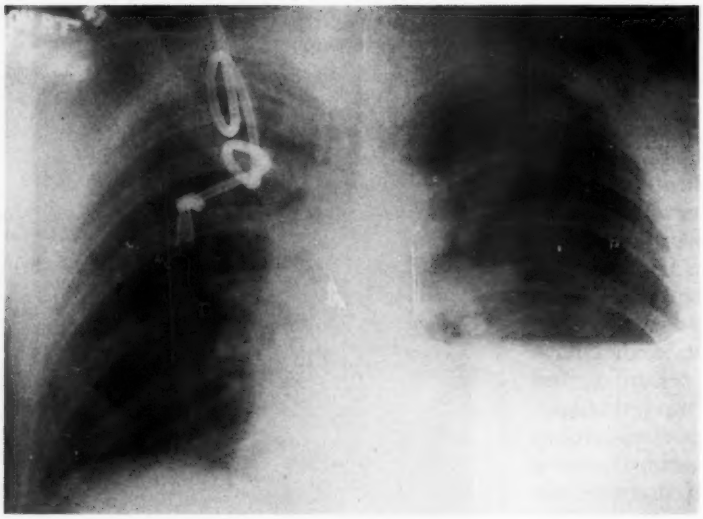

Figure 1. Roentgenogram of the thorax taken May 17, 1947, upright position showing the left hydropneumothorax.

ical findings, and the clinical course of those patients who have experienced a spontaneous rupture of the esophagus. Most of these patients were male and many of them indulged excessively in alcoholic beverages. Heavy eating was a predisposing factor in a large number of cases. Severe vomiting almost invariably preceded the intense substernal and epigastric pain. This pain usually was referred to the region of the lower thoracic portion of the spinal column and often to one side of the thorax or the other. Opiates afforded little if any relief. In practically all instances vomiting ceased with the rupture of the esophagus. The intense pain, the cyanosis, and extreme prostration that these patients exhibit are much more marked than one might expect in a person with a perforated abdominal viscus. In a few hours most of these patients are moribund.

On examination the pulse is weak and thready, though not necessarily rapid. In at least half of the cases subcutaneous emphysema is seen, especially if the patient is observed several hours after the onset. Subcutaneous emphysema appears first in the supraclavicular regions and spreads rapidly to the face, thorax, and upper extremities. Also, there is very likely to be evidence of hydropneumothorax on examination, a fact that can be readily confirmed by roentgenography of the thorax if the roentgenogram is made with the patient in the upright position. Examination of the abdomen may reveal marked rigidity. In fact the abdominal signs are likely to predominate in any perforation of the lower part of the esophagus, and exploration of the abdomen has been carried out a good many times. The presence of either subcutaneous emphysema or hydropneumothorax should serve to differentiate acute rupture of the esophagus from acute abdominal conditions. In some instances the roentgenogram made of the thorax will show mediastinal emphysema or a fluid level in the mediastinum before physical signs are evident.

In differential diagnosis the conditions to be considered include perforation of an abdominal viscus, acute pancreatitis, coronary occlusion, and spontaneous pneumothorax. However, the diagnosis of spontaneous rupture of the esophagus is not difficult if one considers the possibility. A history of vomiting, the intense pain, cyanosis, and shock, and the presence of either subcutaneous emphysema or hydropneumothorax should enable one to make the diag-

Figure 2. Roentgenogram of esophagus and stomach made June 30, 1947, which revealed only slight deformity at the site of the previous rupture of the esophagus.

nosis. In case of doubt, pleural fluid can be aspirated and tested for its acid content. This has been done by Aldrich and Anspach and others. However, when rupture of the esophagus is suspected there is no time to temporize. Immediate transthoracic exploration is justified.

TREATMENT

The patient who has spontaneous rupture of the esophagus presents a serious problem to the surgeon. The operative risk is great, but there is no alternative and each passing hour lessens the chance of survival. In 1926 Williams and Boyd recommended immediate thoracotomy. In 1944 Collis and his associates attempted this, but their patient did not survive. Kinsella's patient would have survived had it not been for an unfortunate pulmonary embolism. Foggitt performed abdominal exploration twenty hours after the onset and pulled the esophagus down into the abdomen where he repaired the slit in the esophagus, but his patient died.

It is recognized that the lowermost portion of the esophagus is its weakest point. Practically all the spontaneous perforations reported have occurred just above the diaphragm. A clean longitudinal slit 2 to 5 cm. in length is usually seen. Perforations occur more commonly on the left than on the right side. In at least 2 instances (including Boerhaave's case) the esophagus was torn completely across.

It is impossible to draw conclusions on the basis of one case in which treatment was successful. We feel that immediate transthoracic exploration, however, with repair of the esophagus is the procedure of choice. The use of both penicillin and streptomycin is advocated in these cases, as the inevitable contaminating substances in the pleural and mediastinal cavities will contain a great variety of bacteria. Drainage of both the mediastinum and the pleural space is also indicated. Blood transfusions are essential in combating shock, and parenteral administration of fluids is likewise desirable. A nasal tube can be inserted into the stomach at the operation time to facilitate feeding.

We believe that the transthoracic approach is preferable to the posterior mediastinotomy suggested by Eliason and Welky and by Klein and Grossman. We would agree with Barrett that in case of doubt a left-sided approach is preferable. All authorities agree that immediate diagnosis and immediate operation are imperative for rupture of the esophagus.

The Diagnosis and Treatment of Arterial Hypertension

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High blood pressure is not a disease *sui generis,* but is a clinical manifestation which may occur in a variety of disorders. For practical purposes, hypertension may be classified into primary or essential, and secondary hypertension. In the latter class, glomerulonephritis, pyelonephritis, polycystic kidneys, suprarenal growths, pituitary tumors, and other endocrine disturbances are the outstanding causes. For the present, attention will be devoted entirely to the primary or essential type. It is the most important form, is by far the commonest, and accounts for about 80 per cent of all hypertension.

Despite the prodigious literature and extensive research on the subject, there is as much confusion as ever in the minds of physicians concerning this disorder. Since the etiology, pathogenesis, and clinical course are not known with any certainty, the treatment still is empirical. We are in a paradoxical situation, for, even though we have more knowledge, we still have little clear understanding. Some of the confusion arises from failure to understand the natural history of high blood pressure; that is, there is lack of knowledge concerning the incidence, the mode of development, and the clinical course. Some hypertensives run a rapid course leading to complications and death early in the disease, whereas others are destined to have a long and useful life with little or no inconvenience from their blood pressure.

Since the introduction of the sphygmomanometer into clinical medicine at the beginning of the century, the recognition of hypertension has become so common that in many cases it is questioned whether this is an abnormality of significance. But one must not ignore the fact that the common complications of hypertension head the list of causes of death.

Confusion is increased when patients are found to have elevated blood pressure and continue to live without further signs or symptoms of the disease for many years. The size of this group of symptomless and signless hypertensives is unknown, but it must be very large, since experience teaches that some persons with hypertension may live comfortably for over twenty-five years. Confusion in the minds of both physicians and patients is accentuated when they see patients of this large group treated radically—medically and surgically.

At the original meeting of the Foundation for High Blood Pressure, it was rightly emphasized

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that one of the first requirements in the study of hypertension would be as complete as possible an investigation of the natural history of essential hypertension.

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SIGNIFICANCE OF HIGH BLOOD PRESSURE

Because of the uncertainty which surrounds the etiology, pathogenesis, and course of hypertension, a satisfactory classification is not possible at the present time. To consider high blood pressure as a mere manifestation of some underlying disorder is quite customary, and a distinction has been developed between hypertension and hypertensive disease. Allbutt fifty years ago distinguished hyperpiesis or hypertension from hyperpiesia, which corresponds to our hypertensive disease. One indicates high blood pressure alone; the other implies a disease of the vascular system and its sequelae throughout the body.

While in a given case the exact level of the blood pressure may have little significance, in a large series of cases the magnitude of the blood pressure becomes more important as a prognostic factor. As a rule, the higher the pressures, the more certain one is to develop unfavorable complications early. In 1925, May pointed out that the mortality rate from hypertension strongly increases with elevation of pressure.

Murphy and associates in 1932 made a study of 375 autopsied cases of essential hypertension. Of this group, it was seen that 50 per cent of deaths were caused by heart disease, 10.4 per cent by renal failure, and 13.4 per cent by cerebral complications (see Table 1). Table 2 also shows the causes of death in 135 autopsied cases of hypertensive disease in the year 1946.

The blood pressure, especially in the benign phases, may fluctuate greatly, even within a period of twenty-four hours. When all these factors are considered, it is easily seen that the height of the blood pressure itself is not the factor of greatest consequence, but it is the kind of material in the arterial tree, the heart, and the kidney which determines the destiny of the patient suffering from high blood pressure.

Recently I examined a patient who has had a systolic pressure above 170 mm. and a diastolic in excess of 100 for forty years. Because of this hypertension, he was rejected for life insurance more than forty years ago. At the present time, he has no signs or symptoms of this hypertension, except for a slight cardiac hypertrophy.

A CHARACTERISTIC feature of essential hypertension in its early stages is its lability. Fluctuations are common in the earlier periods and may vary greatly from time to time. As the disorder continues, there is a tendency for the blood pressure to become fixed at a higher level. The causes of these marked variations in the levels of blood pressure are not entirely unknown. Sometimes the blood pressure may fall spontaneously from a high level and remain normal for months. It is known that blood pressure may fall to normal following a brief period of bed rest during an acute infection or after a change in one's way of living. Clinicians of ex-

TABLE 1

CAUSES OF DEATH IN 375 AUTOPSIED CASES OF ESSENTIAL HYPERTENSION

Cause of Death	Number of Cases	Per Cent
Heart disease	188	50.0
Renal failure	39	10.4
Apoplexy or thrombosis and embolism	50	13.4
Infections	375	14.2
Miscellaneous	53	12.0
Total	45	100.0

TABLE 2

CAUSES OF DEATH IN 135 AUTOPSIED CASES OF HYPERTENSIVE DISEASES IN THE YEAR 1946

Cause of Death	Number of Cases	Per Cent
Heart failure	62	45.9
A. Coronary sclerosis	(26)	(41.9)
B. Myocardial degeneration	(24)	(38.7)
C. Myocardial infarction	(12)	(19.4)
Cerebrovascular accidents	18	13.3
Uremia	11	8.1
Pulmonary embolism	8	5.9
Pyelonephritis	5	3.8
Nephrosclerosis	1	.8
Causes other than above	30	22.2
Total	135	100.0

perience know that following myocardial infarction, blood pressure may fall to normal and then remain normal for years after the heart condition has healed.

It is the elevation of the diastolic pressure which is of most concern. Although the systolic blood pressure may vary a great deal, the diastolic phase tends to fluctuate less. Isolated cases of elevated diastolic pressures above 100 with a systolic pressure within normal limits (140 mm.) are reported, but they are rare. The width of the pulse pressure is considered of some prognostic guidance in some cases. It is an unfavorable sign when the diastolic pressure remains persistently at a high level and the systolic pressure tends to fall. Furthermore, if the diastolic pressure rises to 130 mm. and remains persistently at this level or above, malignant hypertension must be suspected.

From what has been said, it is evident that the level of the blood pressure is much less important than is the ability of the arteries, the heart, and the kidneys to withstand the strain of the pressure.

PROGNOSIS OF HYPERTENSION

Since the days of Janeway, optimism in arterial hypertension has been steadily increasing. Although he found prognosis better than it was usually considered in his day, it may be concluded at the present time that even Janeway was too pessimistic.

Bechgaard, in a follow-up examination of 1000 patients suffering from hypertension, found 71 per cent of these patients alive after a period of seven to eleven years. In most cases, he found that one-half of the patients were in good health and on the whole were not inconvenienced by their hypertension. Furthermore, almost one-fourth were completely free from symptoms. A little less than one-half were actually inconvenienced, but in a significant number of these cases, the symptoms might pass and be explained by some other disease or the age of the patient. He also points out that prognosis is much better in women than it is in men.

Since patients of the hospital type are more commonly used for prognosis than the ambulatory kind, it is generally held that the prognosis in hypertension has been too dark. Patients who apply at a clinic for aid or go to the hospital are usually those who are sick, but statistics drawn from this group are apt to ignore the fact that a very large group of hypertensives are not sick at all and don't even know they have high blood pressure.

How long a patient will live with high blood pressure before one of the common complications sets in is a matter about which we have little understanding. For purposes of prognosis, hypertension in individuals over 40 may be rapidly progressive, while hypertension in individuals over the age of 60 years usually takes a benign, calm course with few of the disastrous complications.

CHIEF COMPLICATIONS OF HYPERTENSION

Many patients with essential hypertension live for years without any added difficulty, but common complications that must be considered are heart failure, renal insufficiency, cerebral disorders, and malignant hypertension. A complete diagnosis of hypertension requires more than merely estimating the height of the blood pressure at the time of the patient's visit. Recognition of the prodromes of the complications should be made as early as possible if full benefit is to come from treatment.

A study of the hypertensive requires a few simple but precise examinations:

1. The height of the blood pressure is determined, and by subsequent observations, it is learned if the pressure has become fixed at a high level or if it fluctuates. The presence of marked fluctuations indicates that the hypertension is more functional than organic.

2. Since every patient with high blood pressure is in imminent danger of developing heart disease, an early appraisal of the condition of the heart must be made.

3. Although only few cases of hypertension develop renal failure and die of uremia, knowledge may be obtained concerning the functional capacity of the kidneys.

4. Cerebral vascular disease constitutes one of the serious complications of hypertension. Although we are in a position to examine and appraise the condition of the heart and kidneys, it is not easy to recognize impending dangers in the blood vessels of the brain. Ophthalmoscopic examination, however, reveals the condition of the arterioles in the retina, and for practical purposes, we may say that a study of the eyegrounds is helpful in a study of the blood vessels of the brain itself. Furthermore, experience proves that the old dictum is true—that the eyeground is a mirror of the kidney, and when albuminuric retinitis sets in, the kidney is usually badly damaged. Of course, the albuminuria has nothing to do with the damage in the eyegrounds. So-called "albuminuric retinitis" is an indication of hypertensive encephalopathy; thus, it is seen that a study of the eyegrounds gives us firsthand information concerning the kidney, the blood vessels of the brain, and the severity of the hypertensive process in general.

THE HEART AND HYPERTENSION

The impending danger of heart disease in hypertension has been recognized universally, but usually the disorder is neglected until heart failure sets in, when little but symptomatic relief is possible.

Hypertensive heart disease may display itself as angina pectoris, coronary insufficiency, coronary occlusion, or congestive heart failure. In all cases there exists a disproportion between the blood supply and the increased heart muscle mass which eventually results in myocardial insufficiency. Auricular fibrillation, flutter, or advancing coronary disease may be precipitating factors in causing the heart to fail. But there are other factors which may change the picture from one of impending heart failure to one of imminent failure, such as excessive physical exertion, acute infections, and traumatic injuries.

In hypertension of moderate degree, the heart may be greatly enlarged, whereas, when there is excessive hypertension, heart enlargement may be negligible. There are several important signs and symptoms which betray the onset of myocardial insufficiency in hypertension. Although the heart may remain enlarged for years and the patient may tire out more easily than usual, the ability of the heart to withstand the strain of hypertension is amazing. In this period before the heart breaks down, radical measures (surgical treatment) are advocated.

It is the left ventricle of the heart which bears the brunt of the blow in hypertension, and it is this chamber that usually fails first. The presence of râles in the bases of the lungs may be the first evidence of left ventricular insufficiency. Along with these go paroxysmal nocturnal dyspnea and sometimes dyspnea on exertion. Physical examination at this time may also show a systolic mitral murmur, which is evidence of dilatation of the heart. This mur-

mur indicates that the mitral ring has become dilated and that mitral insufficiency exists. It may last for a few days, and then, as the heart picks up its reserve, it may disappear. Auricular fibrillation may set in and aggravate the already weakened heart, but the irregularity which is most common is the gallop rhythm. This rhythm is characterized by three beats instead of two. The gallop sound is easy to recognize but is often overlooked. This third sound occurs immediately before the systolic beat, but it is not a part of the systolic phase. Sometimes the gallop rhythm lasts for only a brief period, but when it is recognized, it is clinching evidence that the heart has begun to weaken and that heart failure is imminent.

Once the left ventricle has failed, the patient's future is full of uncertainty. Treatment at the beginning of left ventricular failure may be followed by a speedy recovery, but a temporary one. Within a short period of a few months, the same old story repeats itself. The episodes of left ventricular failure become more prolonged, and finally the right ventricle fails, too. The result is complete heart failure from which the patient does not recover.

IT IS well known that the control of hypertensive heart disease rests upon tne control of the high blood pressure. The question arises if other nonsurgical measures may accomplish satisfactory results in many cases. It is quite evident that many hypertensives developing heart disease have a progressive kind of disease which cannot be headed off by ordinary methods. It must be remembered that the various operations being recommended are drastic, major types and that there may be some objectionable and uncomfortable complications from them. It seems that such operations are for a limited number of very carefully selected cases.

This kind of radical treatment should be reserved for selected patients who have a progressive type of hypertension—which cannot be controlled by simpler measures—and who are suffering and in whose cases there is impending danger of serious complications.

THE KIDNEY IN HYPERTENSION

There is no unanimity of opinion concerning the role of the kidneys in essential hypertension. In ancient times the kidney and blood pressure relationship was known, for Volhard mentions a Chinese physician, Choun-You-J, as giving the following pulse rule: "When the pulse upon deep pressing is very firm and upon superficial palpation very tight, then the disease has its seat in the kidney." In Bright's day and for the next half a century, hypertension was believed caused by renal disorders; then opinion changed and the kidney was thought to have no part in the etiology of hypertension.

Certain renal diseases are known to cause hypertension. In this category are glomerulonephritis, pyelonephritis, cystic diseases of the kidneys, and obstructive uropathies. But it is the relationship of essential hypertension to the quite-normal-appearing kidney which has caused most discussion.

Following the special work done by Goldblatt in producing hypertension by rendering the kidney ischemic, opinion shifted again to the kidney as the chief offender in hypertension. In this work, Goldblatt emphasized that the hypertension which results was not associated with defective kidney secretion.

The pathogenesis of hypertension is unknown, but that essential hypertension is the result of a pressor substance circulating in the blood, is the view widely held. Page and associates hold that as a result of disturbances in the circulation of the kidney, renin, activated by a renin-activator in the blood, is elaborated and results in formation of angiotonin (pressor substance) which causes peripheral vascular constriction, augmentation of the heart beat, and hypertension. An alternative hypothesis to explain the role of the kidney in hypertension is that the kidney elaborates a humoral agent essential for the well-being of the body; in the absence of this agent hypertension results. Other hypotheses have been advanced, but so far none is more than speculation.

Although the kidney may show signs of insufficiency during the course of essential hyper-

tension, renal failure occurs in less than 10 per cent of cases. The presence of albumin in the urine, the inability of the kidney to concentrate to a specific gravity of 1.020, and fixation of specific gravities at lower levels point to renal insufficiency. Many times the kidneys are impaired in their ability to clear urea satisfactorily or to secrete phenolsulfonephthalein adequately, although hypertensives who live for many years develop the primary contracted or shrunken kidney. Yet kidney impairment to a point of insufficiency is usually not an important complication.

CEREBRAL LESIONS

Concerning the cerebral complications of essential hypertension, statistics from various clinics show practically the same figures of about 12 to 16 per cent of cases. The transitory cerebral phenomena in hypertension are due to cerebral vasoconstriction. Such things as epileptiform convulsions, transient hemiplegia, monoplegia, aphasia, and amaurosis may occur with essential hypertension.

The functional changes in the brain secondary to hypertension are indicated by headache, vertigo, fainting, and sometimes impaired memory, and even mental changes. The headache is of a distinct kind, as a rule, coming on in the morning and disappearing before noon, and is an ache confined to the back of the neck and over the back part of the head. It has long been hoped that some test could be used to determine the oncoming of cerebral accidents, but so far there is no way of obtaining this kind of information with certainty.

Taylor and Page pointed out five useful signs and symptoms which they considered evidence indicating a stroke would occur within the following two years. They were: (1) severe occipital headache, (2) vertigo or syncopy, (3) motor or sensory disturbances, (4) nose bleeding, and (5) hemorrhages in the absence of choked disks.

BENIGN (ESSENTIAL) AND MALIGNANT HYPERTENSION

Volhard and Fahr classified essential hypertension into the benign and malignant forms. Although these terms are not quite satisfactory, they have become fairly well established in the literature. Originally these authors applied the term "malignant nephrosclerosis" to the case in which there was an inflammatory lesion added to a kidney already diseased with arteriosclerosis. In this country the term "malignant hypertension" has a different connotation, as pointed out by several authors. The patient with the benign form will develop symptoms of hypertension in the late forties or in the early fifties after having had elevation of blood pressure for from five to ten years. The benign form takes a slow, painless course and terminates in most cases in heart failure, cerebral hemorrhage, or uremia many years after the onset of hypertension. The malignant form differs from the benign in degree of severity, speed of progress, and the ultimate outcome.

In both forms, arteriosclerosis of the small arteries of the kidney and other organs is present. But in the malignant type, the arteriosclerotic process is much more widespread, and involves the smallest arteries and arterioles of the kidneys and other essential organs of the body. The characteristic histologic lesion of malignant hypertension consists of necrotic lesions scattered throughout the afferent arterioles of the kidney. The difference histologically in these two forms is one of degree, not of kind.

Clinically, malignant hypertension occurs more often in patients under the age of 50. The blood pressure, which may have followed a benign course for a few years, suddenly rises and becomes fixed at a high level. The diastolic blood pressure, which formerly was below 110 mm., cannot be reduced below 130 mm. Severe headaches are almost always present, and there is loss of appetite, loss of strength and of weight, and vomiting usually occurs. The general deterioration of health brought on by the involvement of more than one of the essential organs

of the body is the feature which prompted the use of the term "malignant" in the beginning.

The downward trend of the disease is rapid and stormy. Death usually occurs abruptly within a period ranging from a few months to a few years after the onset of the malignant phase. Clinically, the chief diagnostic feature occurs in the eyegrounds. They are characterized by choking of the disks, old and new white patches scattered throughout the retina, old and new hemorrhages both large and small, and edema of the retina, which usually obscures the constricted arterioles.

MANAGEMENT OF HIGH BLOOD PRESSURE

The rational method of treatment would be to remove the cause, but since the cause of hypertension is not known, treatment must be limited to palliative measures. Treatment, as a rule, is deferred until one of the chief complications sets in, since hypertension itself seldom causes any discomfort. And although it is always difficult to determine which patients are destined for early trouble and which may escape complications, it is usually best to attempt to control the excessive hypertension before complications become imminent.

The general measures and symptomatic treatment are sufficient in many instances to control a moderate high blood pressure. An inquiry into the patient's ways of life, daily habits, and diet may prove beneficial in aiding the patient. By a carefully conducted history, one may obtain information regarding the patient's personal life and help him correct any problem he may have. The blood pressure often falls to normal after the removal of some emotional factor has been effected.

Blood pressure may be reduced by recommending changes in habits, such as more rest, a nap in the afternoon, and less work and more recreation, thus lessening the load on the heart. Sometimes the patient's occupation is not suitable for a hypertensive, and it may be advisable at times for the patient to consider changing from one job associated with emotional strains to one adapted to his nature.

The patient's diet may be adjusted to the needs of the body. Most patients forget that when they are in the forties or fifties they do not metabolize food as well as they did at a younger age. Therefore, reduction in food as well as following a low protein diet containing a high alkaline ash should not be overlooked. Kempner pointed out that dietary treatment is useful in kidney disease, but is of little or no value in cases of hypertension without obvious renal involvement. For cases with this hypertensive complication, he recommends the rice diet and shows that those people who follow the diet have a urea nitrogen concentration below the level of normal as well as maintenance of hemoglobin and plasma protein levels.

Much has been said on the use of tobacco, but personal experience has shown that those patients with hypertension and beginning cardiac hypertrophy should cease smoking immediately, for they will begin to feel better and progress more satisfactorily. As for the use of alcohol, there is great diversity of opinion. Apparently, patients accustomed to the use of alcohol in moderation may continue its use, but as a general rule, those patients suffering with heart disease will do best without it.

The drug treatment of hypertension has never been highly satisfactory. However, potassium thiocyanate is of distinct value. It is very effective in many patients in controlling severe headaches, tinnitus, and vertigo. According to Bennett, no one knows exactly how this substance acts, but there is no doubt at all that potassium thiocyanate does sometimes give dramatic results in properly selected cases.

Barker was responsible for the modern use of potassium thiocyanate. He emphasizes the careful control of the blood level of the drug if adequate results are to be obtained. Usually, potassium thiocyanate is given in 3 gr. tablets two or three times a day, or often enough to maintain the blood level between 8 and 14 mg. per cent. A check on the blood concentration should be made about every ten days at least during the early months of treatment. Thereafter, determinations may be spaced at one- to two-month intervals. Thiocyanate should be

stopped during fever periods or infections. It should not be employed at all when there is renal insufficiency and in the presence of heart failure. Patients over 60 years of age must be treated cautiously because a sharp reduction in blood pressure may lead to cerebral complications. Patients with hypertensive headache have also been treated with this drug. But it should be restricted in cases in which hypertensive headache is a predominating feature.

The toxic manifestations of potassium thiocyanate have been dwelt upon at length by many. Personal experience has proved that these toxic manifestations are not as serious as claimed, since the potassium thiocyanate level of the blood is watched carefully. The patient is warned to discontinue the use of the drug when itching of the skin occurs or when a rash appears on the body. Exfoliative dermitis may develop if the use of the drug is continued in such cases. Mental symptoms, anemia, severe exhaustion, or nausea and vomiting also require stoppage of the drug.

Xanthines, barbiturates, and nitrites have been used in treatments, but their benefits are difficult to assess. In a study by Kapernick a number of drugs commonly used in the treatment of hypertension were tested. But no sustained significant reduction in blood pressure of persistent hypertensives was brought about after a thirty-day period of treatment. Vitamin A in large doses has been recommended for treatment, but thus far the results have not been as satisfactory as expected.

WITHIN recent years the psychosomatic approach to hypertension has not been neglected. As Weiss and Kleinbart point out, this approach does not mean to study the soma less, but to study the psyche more. This form of therapy requires a very thorough understanding of the patient's environment, his living conditions, and even his inhibitions. Knowledge of a patient's anxieties and fears are not obtained by a casual interview with the patient. The consequences of high blood pressure are so serious in the minds of some that it takes more than a bottle of medicine or pills to bring this pressure down. Neither is it enough to tell the patient to forget and that his troubles mean nothing, for if his blood pressure is high, he usually is worried. While the psychosomatic treatment is not the only measure of therapy, in some cases it is very helpful.

Sympathectomy for essential hypertension accomplishes the following results: (1) Relaxation of the vascular bed of the lower extremities and of the abdomen occurs; and (2) the blood pressure usually falls following the operation, but frequently rises again. Several kinds of operations have been recommended for hypertension, but judging from the literature, there is no unanimous opinion as to the most desirable one.

White regards the operation as a rational approach to the treatment of hypertensive heart disease until a simpler but more effective method is discovered. Kerr, on the other hand, says hypertension by itself does not often give symptoms until the subject is aware of his high blood pressure, and he is generally relieved of symptoms of anxiety after sympathectomy or any other method of treatment carrying an impact of suggestion. Kerr is far from enthusiastic over sympathectomy and says that the beneficial results are about the same as after the use of any other method employed with equal enthusiasm and diligence. He raises the question whether sympathectomy is not another example of mastery of technic over reason and whether it will not soon fall into discard along with sympathectomy and thyroidectomy for heart disease.

Although sympathectomy has been successful in some cases, there are several disadvantages to its use:

1. Not all patients are suitable for the operative procedure. The young or middle-aged are the best candidates (those between 30 and 45 with a relatively high diastolic (120–140) and a relatively low pulse pressure (50–77 mm.) reacting well in blood pressure levels to change in posture, to cold, etc.).

2. This operation is always a major one which demands long convalescence.

3. It is not possible beforehand, despite the elaborate measures for determining suitable patients, to say which patient will be benefited. In determining the outlook for individual patients, chief factors such as the preoperative level of the diastolic pressure, the condition of the brain, the eyegrounds, heart, and kidneys, and the response to sedation must be considered. The duration of hypertension is always important, too, but it is rarely possible to obtain exact information regarding this.

When metal clamps are constricting the renal vessels in dogs, hypertension develops. Peet believes that in hypertension in human beings there is a neurogenic clamp, and by section of the autonomic nerves to the blood vessels, this clamp is removed and prevents more abnormal constriction of arterioles.

Smithwick reports that out of 179 unselected hypertensive patients observed from one to five years, the majority were improved by sympathectomy. In 42 per cent, the diastolic blood pressure was lowered, and in 8 per cent the blood pressure was higher. He says that the effects of sympathectomy are generally as follows: (1) lowering of diastolic levels, (2) narrowing of pulse pressure, (3) reduction in ceiling levels after stimulation, and (4) reduction in the magnitude of reflex responses.

At the present time, there is no unanimity of opinion regarding the advisability of sympathectomy for hypertension. Most clinicians believe it is a measure too drastic and extensive for most patients with high blood pressure. If we consider the fact that the majority of hypertensives live useful lives without discomfort for many years, the group of patients which should be subjected to surgery becomes quite narrow. For the hypertensive under the age of 50 who has a progressively increasing hypertensive picture and who has the prodromata of some serious complication, this operation should be considered. But for the individual with hypertension who is not suffering from the chief symptoms, such as headache, impending heart failure, or stroke, conservative treatment and medical measures are best.

There is a growing tendency to recommend without justification these drastic methods for hypertensives who may be able to live comfortably with little or no treatment. Most hypertensives require little treatment, some are helped by medical treatment in moderation, and a few well-selected cases may obtain benefits from sympathectomy.

SUMMARY

1. Although extensive research has been done in the field of hypertension, there is still much confusion, since the etiology, pathogenesis, and course are not known.

2. Some kidney diseases, such as glomerulonephritis, polycystic kidney, pyelonephritis, and tumors may cause hypertension, but the cause of essential hypertension is not known. Essential hypertension is the most common form, accounting for about 80 per cent of all cases.

3. Most patients with hypertension live comfortably for many years without any added signs or symptoms. Treatment of the benign form should be moderate and simple. In a few patients drastic measures such as sympathectomy may be used.

4. Kidney insufficiency, although considered carefully, is usually not a common complication. Cerebral accidents, on the other hand, are by no means rare and occur in about 12 to 16 per cent of cases.

5. Malignant hypertension is a later phase of the benign form and differs only in the greater severity of its symptoms, the more rapid breakdown of the essential organs of the body, and the more persistent and excessive hypertension.

6. Psychosomatic as well as drug therapy is suggested, and potassium thiocyanate is discussed for treatment.

7. Results of sympathectomy for hypertension have been gratifying in many cases, uncertain in some, and definitely poor in others. An unfavorable aspect of sympathectomy is the growing tendency to subject patients to this major operation who would progress satisfactorily with a less drastic method of treatment.

A New Antacid for Peptic Ulcers

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Peptic ulcer is a disease of the twentieth century. I do not wish to imply that peptic ulcer did not exist previously, but it is only since the general use of the diagnostic x-ray that we have objective evidence of the disease in the living patient and that it can be accurately diagnosed. As late as 1935 the diagnosis of duodenal ulcer in some of our leading institutions was made by so-called "secondary signs" and was often wrong.

Only in the last ten years, with the general adoption of aimed compression serial technic as developed by von Bergmann and Akerlund in the 1920's, is the objective diagnosis of duodenal ulcer approaching perfection. This improvement in the accuracy of determining the presence of ulcer and the general acceptance by the profession of the x-ray as the *sine qua non* for ulcer diagnoses have resulted in the discovery of ulcer in a greater number of people than it was thought suffered from ulcer in the early years of the century.

With the improvement in diagnosis the judgment of therapeutic results became more discriminating. It was gradually learned that the antacids which had been used for centuries for dyspepsia in general were much more valuable in the treatment of ulcer. Although von Strumpell, as early as 1895, used a mixture of bismuth subcarbonate and sodium bicarbonate to treat gastric ulcer, it was Bertram Sippy of Chicago who in 1917 gave us the concept of continuous acid removal as a requisite for the healing of the much more common duodenal ulcer as well as gastric ulcer. The best available antacids in Sippy's day were sodium bicarbonate, bismuth subcarbonate, and magnesium oxide. He used the constipating bismuth salt to counteract the laxative effect of magnesium oxide. Sippy soon learned that bismuth salts were very poor antacids, and in his last years discontinued their use and replaced them with calcium carbonate. Per unit of weight, magnesium oxide is still the most active antacid we have, but it is so laxative in action and after ingestion causes such a marked secondary acid rise that it has fallen into disuse.

In the past quarter of a century several other methods of ulcer therapy have been suggested. I will mention a few: diathermy, x-ray therapy, injections of foreign protein, emetine hydrochloride mixed with foreign protein, streptococcus vaccine, the histamine hydrochloride, the amino-acid histidine, and anterior pituitary

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snuff. None have proved effective. Clinical experiments with urogastrone (Sandweiss) and enterogastrone (Ivy) are as yet inconclusive. However, many improvements have been made in the treatment of ulcer.

The regimen used by Sippy has been modified to advantage. He used mixtures of milk and cream. Since many patients are cream-sensitive, the use of this mixture has given way to whole milk. Puréed vegetables and other foods are used at the onset of therapy instead of milk and cream alone. Sippy starved his bleeding patients. Andreson pointed out that there was an advantage in promptly feeding bleeding ulcers.

The antacids used by Sippy had many disadvantages. Calcium carbonate was too constipating and magnesium oxide too laxative, and to strike a happy medium in the dosage of each for an individual patient was almost impossible. The sodium bicarbonate used was absorbed and caused alkalosis. Both sodium bicarbonate and calcium carbonate, when neutralized, produced carbon dioxide, which the patient belched to his embarrassment and often to the amusement of his friends and relatives. Then the introduction of tribasic salts of calcium and magnesium, of aluminum hydroxide, and phosphate jels, and of magnesium trisilicate were an improvement on the antacids used by Sippy. Unfortunately, these antacids all have constipating or laxative action upon the bowel, and in some patients the discomfort caused by this irritating effect on the intestines is more difficult to manage than the pains caused by the ulcer. The search for an ideal antacid continues.

MANFRED KRAEMER

NATURE AND USES OF SYNTHETIC RESINS

In 1938, while seeking an improved antacid, I discussed acid adsorbents with Mr. Howard Tiger, a water purification engineer. He had recently returned from a trip abroad on which he had investigated the report of Adams and Holmes concerning the ion exchange properties of certain synthetic plastic resins. We computed that of the resins then available about a pound a day would have to be ingested in order to remove sufficient acid in a patient with ulcer and to promote healing.

Synthetic resins are plastic substances which have been developed in a great variety of chemical formulas since 1906, when Baekeland discovered the substance now called Bakelite. These synthetics were called resins because they had a physical resemblance to such natural resins as amber; but there is no chemical relationship between synthetic and natural resins. These synthetic resins were highly prized for their hardness and inability to react with common chemicals; it was this inert quality which made them so useful for radio panels, hair brushes, and the like. It was known that some of these resins had biologic properties since they produced a dermatitis on the hands of patients who were sensitive.

In 1935 Adams and Holmes discovered that resins of a type known as phenol formaldehyde condensates could remove acids from solutions. If passed through an alkali medium, the acids were released and the resin was restored to its

original state of usefulness. Such a substance, which lent itself to rejuvenation, immediately found extensive use in the water purification industry. Both acid- and alkali-adsorbing resins were produced. The industry developed so rapidly that now synthetic resins for removing acids and alkalies from liquids are sold on a tonnage basis.

During World War II resins of increasing acid-adsorbing power were developed. Tiger had performed animal experimentation with the earlier anion exchange resins and had proved their innocuous nature. Segal, working with one of the newer resins, showed them to be innocuous for rats and mice in doses so high as to constitute an equivalent of 20 per cent of the animal's diet over a period of many months. Martin improved on the acid-adsorbing power of the resin used by Segal. This resin had sufficient acid-removing power to suggest it useful in the treatment of peptic ulcer in dosages of 10 to 15 gm. for twenty-four hours.

Reports of its clinical efficacy have been published by Speare and Pfeiffer and myself. A more extensive experience will be published shortly. In this paper I will discuss my findings in 90 patients with duodenal ulcer treated for from one to fifteen months with resin.

The resin ion exchangers, of which these phenol formaldehyde condensation products are a group, have found wide usage in the chemical field and present possibilities in therapy other than in the treatment of peptic ulcer. Cation exchange resins should be developed to withhold sodium from adsorption through the bowel mucosa. Thus patients on low sodium diets, cardiacs, nephritics, epileptics, and the like might be given a normal amount of salt in their diet, provided they simultaneously ingested a specific amount of resin. I have discussed this possible use for resin with Mr. Tiger, but as yet no reports of animal experimentation have appeared. Until such are carried out, no clinical studies can be made. William Dock has recently called attention to the possible oral ingestion of cation exchange resins to remove ingested sodium in cases of cardiac edema. Resins may be developed with the ability to adsorb irritating exudates from wounds. A cation exchange resin placed about an ileostomy stoma or the opening of a pancreatic fistula would adsorb the alkaline small bowel secretions and minimize skin excoriation. Since resins act in any state, no macerating solvent would be required.

The synthetic resins are also adsorbers of enzymes. Wilkinson and Martin have shown a reduction of peptic activity to 17 per cent of its original value by the addition of Amberlite IR IV to a pepsin solution. Although Segal's studies do not corroborate those of Martin, the value of this resin as an antacid in treating peptic ulcer possibly may be enhanced by its simultaneous adsorption of pepsin. This property of enzyme adsorption should make resinous preparations all the more valuable in the protection of the skin about duodenal and pancreatic fistulas also.

The synthetic resins absorb the various alkaloids and slowly release them as the *p*H of a dissolving medium changes. By combining a resin with an alkaloid one should be able to maintain a more even adsorption of various alkaloids from the digestive tract over a longer period of time than is now possible. At present a patient usually complains of dryness and blurring of vision an hour after taking atropine sulphate. This effect disappears before the next dose is given or during the night. Thus we have an inconstant action. By combining a resin with an alkaloid we might produce a constant physiologic effect over a twenty-four-hour period. Other obvious valuable combinations with alkaloids present themselves.

EXPERIMENTS WITH A RESINOUS ANTACID

We were generously supplied with a resinous antacid by Dr. Gustav Martin.* This resin is a

*Research Director, National Drug Company. The resin used in this study is now being prepared under the trade name Resinat.

phenol formaldehyde condensation product. It is called Amberlite IR IV̄ in its crude state by the chemical trade. It polymerizes freely, and its structural formula is suggested in Figure 1. It is not known at which point the hydrochloric acid is bound.

We added the resin to a fixed amount of N/20 HCl and also added it to specimens of gastric juice obtained from patients. We compared the neutralizing power of the resin with calcium carbonate and with an aluminum hydroxide suspension in common use. On a volume basis we found that the neutralizing power of the resin was less than that of calcium carbonate but better than that of the aluminum hydroxide suspension.

The resin we used was of the 200-mesh type prepared by Dr. Martin. By further grinding, it is hoped that a finer mesh resin can be produced. The ideal resin should approach the neutralizing power of calcium carbonate. The 200-mesh resin of Martin has several times the neutralizing power of the larger mesh resin used by Segal. Further endeavor by pharmacologists should produce a finer mesh resin and further enhance the acid-adsorbing power of the material. Acid adsorption appears to be a surface phenomenon. The finer the mesh of the resin, the greater surface exposed and the more acid adsorbed.

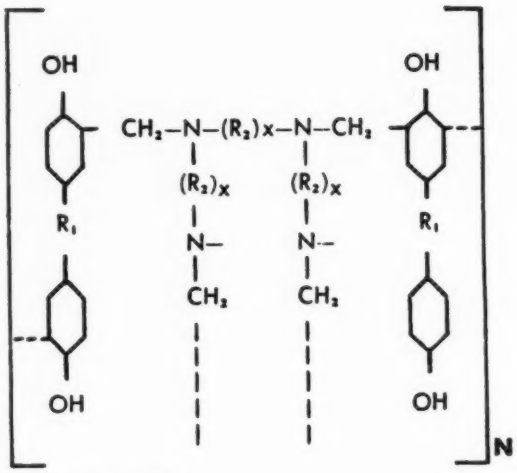


FIGURE 1

DOSAGE AND METHOD OF ADMINISTRATION

I have used a set of three ulcer diets (Tables 1, 2, and 3) for the past eleven years to evaluate various antacids. These diet schedules are easier to use than the standard Sippy regimens and provide a more adequate intake and greater variety of food. Eighty per cent of our patients have been started on the Semi-Ambulant Ulcer Diet (abbreviated as S-A), while 20 per cent have been started on the Hospital Diet. These diets avoid the use of continuous drips of either milk or aluminum jels. Drips of various types, though efficacious, render the treatment of ulcer needlessly complex. In the hospital night hypersecretors are wakened by the nurse and are fed milk and antacid where indicated on the schedules. The patients treated at home set their alarm clocks a half-hour before the usual time of onset of their night pain and drink some milk and take some antacid. The diets are self-explanatory and save the physician needless calls from patients or hospital attendants. Affixed to a hospital chart, they save the time required for writing orders. The antispasmodic used on these diets is prescribed as follows:

Rx	Atropine sulphate	.0003
	Phenobarbital	.015
	Milk Sugar q.s.	
	D.T.D. capsules	No. XXX

Sig: Antispasmodic, one capsule where directed on diet schedule.

The resin was first used in doses of 4 gm., but I have found that from 0.5 to 1 gm. is sufficient. I have been using 0.75 gm. as an average dose. Since our resin is now prepared in 0.25 gm. capsules we label the bottle: "Antacid: 3 capsules when directed on diet schedule." On the Semi-Ambulant regimen the patient will require 18 to 24 capsules a day. These diet

schedules can be used with any antacid. I have used them with either aluminum hydroxide suspensions or with magnesium trisilicate as the antacid.

PATIENTS with complicated ulcers and those whose symptoms do not subside in twenty-four to forty-eight hours on the Semi-Ambulant regimen are hospitalized. In the hospital I prescribe 0.75 gm. (3 capsules) of the resin during the day and 1 gm. (4 capsules) at night wherever the antacid is indicated on the Hospital Diet. If the patients have a partial obstruction no feedings are given after 6 P.M. and the stomach is emptied with the aid of a Wangensteen apparatus at 10 P.M. No night feedings are given to these obstructed cases. If the 10 P.M. residual does not diminish to less than 50 cc. in three days, we consider the patients to be unsuitable for medical treatment. All patients are kept on the Semi-Ambulant Ulcer Diet for six weeks. Patients who are hospitalized are usually released after two weeks and are then also placed on the Semi-Ambulant diet for six weeks. After six weeks of the Semi-Ambulant regimen all patients are placed on the Diet for Quiescent Ulcer. Patients are advised that this last type of diet must be followed for many years and in cases where there are ulcers with much deformity or in cases that bleed frequently, it must be adhered to for life.

I think the adherence to such a regimen and the continued use of antacids and antispasmodics are the crux of the prevention of ulcer recurrence. If patients are willing to abide by regimen for many years, relapses rarely occur. To date, the disagreeable side effects of antacids and the nuisance of carrying liquid suspensions of aluminum hydroxide have caused patients to discontinue their use as soon as symptoms subside. The resin we have been using has up to now shown no such side effects. We have had patients taking several grams a day for fifteen months with no ill effects. During the season of the year when an ulcer tends to relapse, we advise a return to the Semi-Ambulant Diet for about six weeks.

TABLE 1

HOSPITAL DIET AND DIRECTIONS FOR COMPLICATED PEPTIC ULCER

STANDING ORDERS FOR NURSES

This diet is prescribed for patients who are suffering from acute hemorrhage, from partial pyloric obstruction, gastric ulcer, and penetrating duodenal ulcers. For the first three days the patient must be kept in bed except to use the toilet. In bleeding cases a bedpan must be used. Visitors restricted. *Feedings and medication must be given exactly at time ordered.*

A. M.
- 7:55 Atropine Sulphate .0003 gm. Phenobarbital .015 gm.
- 8:00 Cooked cereal oz. 4, sugar dram 1, cream oz. 1, milk oz. 8.
- 9:00 Antacid
- 10:00 Milk oz. 8
- 11:00 Antacid
- 11:55 Atropine Sulphate .0003 gm. Phenobarbital .015 gm.
- 12:00 M. Puréed vegetables oz. 4 with butter, mashed potato oz. 4 with butter. Cup custard.

P. M.
- 1:00 Antacid
- 2:00 Milk oz. 8
- 3:00 Antacid
- 4:00 Milk oz. 8
- 4:55 Atropine Sulphate .0003 gm. Phenobarbital .015 gm.
- 5:00 Puréed vegetables oz. 4 with butter, mashed potato oz. 4 with butter. Jello and Cream 1 oz.
- 6:00 Antacid
- 7:00 Milk oz. 8
- 8:30 Antacid
- 10:00 Milk oz. 8, antacid; Atropine Sulphate .0003 gm. Phenobarbital .09 gm.
- 12:00 Milk oz. 8 and antacid

A. M.
- 3:00 Milk oz. 8 and antacid
- 6:00 Milk oz. 8 and antacid

Ascorbic acid tablet 100 mgm. b. i. d. by mouth. Parenteral B. Complex (Lederle) 1 cc. i.m. daily. After four days of this diet if the patient is symptom free add to diet as follows:
- 8:00 A.M. Puréed prunes oz. 4, slice toast, butter, soft boiled egg.
- 12:00 M. Milk Soup oz. 4, slice toast and butter.

If the patient has no night pain the feedings after 10:00 P.M. may be discontinued after the third day.

CLINICAL RESULTS

Hospitalized Patients—We have treated 90 cases of x-ray proved duodenal ulcer and 1 case of gastric ulcer with resin. Seventeen of these patients were hospitalized. Of the hospitalized patients 6 were hospitalized because of severe hemorrhage requiring transfusions of whole blood. All these bleeding patients did very well. The one bleeding gastric ulcer was electively subjected to subtotal gastric resection because he had had repeated hemorrhages and the benignity of the ulcer could be proved neither by x-ray nor by gastroscopy. Four of the hospitalized patients had marked obstruction and were

TABLE 2

SEMI-AMBULANT ULCER DIET

During the period of this diet, which should last about six weeks, the patient should rest as much as possible. Relax, avoid arguments, and do not see too many visitors. Follow the schedule explicitly. If you must work go to bed for your evening meal and stay there. Spend your time off (Sundays, etc.) at rest. Choose from the allowed foods. Eat small meals.

SCHEDULE

A. M.

7:55 *Antispasmodic*

8:00 1 plate of cooked, mashed prunes, passed through a collander.
½ cup of cooked cereal, (Cream of Wheat, Farina, hominy, Pablum or oatmeal).
1 soft boiled egg, 1 slice of toast and butter, milk or Kaffee Hag, or Sanka with cream.

9:00 Antacid.

10:00 Glass of milk.

11:00 Antacid.

11:55 *Antispasmodic*

12:00 M. Any milk or creamed soup unseasoned and strained. Cream cheese sandwich. White bread and butter.
Purée of peas, lima beans, carrots, asparagus tips, beets, squash, spinach, or cauliflower. One-half cup of steamed or boiled rice, macaroni, spaghetti, or noodles, with butter. Small serving of mashed potatoes with butter. One slice of toast and butter. Gelatin preparations or rice, tapioca, bread or custard puddings without raisins or nuts; or stewed fruits if passed through a collander, and without syrup.

P.M.

1:00 Antacid.

2:30 Glass of milk.

3:30 Antacid.

4:30 Glass of milk.

5:55 *Antispasmodic*

6:00 One soft boiled egg, or plain omelet, or cottage cheese with sweet cream. Puréed vegetable as at luncheon.
Small baked potato without skin but with butter. Deserts as at luncheon. Toast and butter.

7:00 Antacid.

8:30 Glass of milk.

9:30 Antacid.

10:25 *Antispasmodic*

10:30 Glass of milk and antacid.
Set alarm for following hours:
Do not use seasoning for any of these foods. A pinch of salt may be used. Milk may be malted.
You may drink tap water without ice as you wish.
If any questions arise, phone the doctor.

TABLE 3

DIET FOR QUIESCENT ULCERS AND ALLIED DISORDERS

In health, the gastric juice is acid. When this acid becomes too high, it may cause distress. Physicians call this increase in acid, gastric hyperacidity. It is commonly referred to as "sour stomach." Hyperacidity may be associated with gastritis or peptic ulcer or it may aggravate these conditions if they are present. Patients who have an ulcer should, in order to prevent recurrence, follow this diet which keeps the gastric acid at a low level.

In addition to carefully adhering to the diet, you must eat slowly and at regular times and chew your food thoroughly. It is best to relax on a sofa for a half hour before and after meals. You must avoid strain, worry, and arguments, especially at meal time and you must get at least nine hours of sleep each night. Eat your main meal at noon, spend your holidays and weekends in quiet and relaxation. Don't try to fight your illness; give in to it. Eat very small meals, leave the table a bit unsatisfied. Take food between meals and at bedtime to appease your appetite. If some of the allowed foods disagree with you, avoid them and substitute others on the list. Take your antispasmodic fifteen minutes before meals and at bedtime and your antacid twenty minutes after meals and at bedtime if prescribed.

FOODS TO BE AVOIDED

Salty, sour, spicy, sharp, uncooked and rough foods. Salted and smoked fish and meat. Sausages, bologna and salami. Corned meats. Shell-fish. Canned fish and meats, as salmon, sardines, and deviled ham. Bacon. Ham. Hors d'oeuvres. Oily fish as salmon, herring, mackerel, or shad. Meat soups. Broths. Bouillon.

Raw and dried fruits and vegetables except as mentioned in schedule. All salads, dressings and gravies. Coarse vegetables like cabbage, onion, celery, radish, cucumber and lettuce.

All condiments as pepper, mustard, vinegar, ketchup, horseradish, pickles, olives, chowchow, Worcestershire sauce.

Sharp cheeses. All nuts. Bread and cereals made from bran and whole wheat. Stale bread. Poppy seeds, caraway seeds. Very hot or very cold foods taken on an empty stomach as very hot soup, or ice cream. Soft drinks as gingerale, Coca Cola, and cream soda. Coffee. Strong tea. No smoking. No alcoholic beverages in any form.

SCHEDULE
(Choose from following)

Antispasmodic

Breakfast:

Strained juice of one-half orange. Apple sauce. Stewed fruits, as prunes, apricots, and pears, baked apple without skin. Cooked cereals with cream or milk, and sugar. Soft boiled or poached egg. Toast, roll, or white bread and butter. Cocoa, Sanka, Kaffee Hag, or milk.

Antacid

10:30 A.M. Malted milk, fresh buttermilk, milk, weak tea with sugar and cream, graham crackers, Uneeda biscuits, or other plain crackers.

Antispasmodic

Main Meal (Preferably at Noon):

Creamed soup, (potato, tomato, spinach, asparagus, pea, corn, bean, celery, carrot) strained. Chicken or lean tender beef boiled, broiled or roasted. Do not eat the spiced outside cuts. Squab, turkey, guinea hen, sweetbread, broiled liver. Eat only tiny portions of any of these meats. Boiled or broiled white fish, bass, blue fish, sole, carp, pike, or trout. Restrict meats to only once a week and it is better to favor fish and the lighter meats like chicken. Thoroughly done puréed vegetables. Occasionally tender lettuce leaves without dressing. Boiled, mashed or baked potato. Gelatine, custard or pudding for dessert. Occasionally stewed fruits with cream avoiding the syrup and skins. Occasionally plain sponge or angel cake.

Antacid

4:00 P.M. Malted milk, fresh buttermilk, milk, weak tea with sugar and cream, graham crackers, Uneeda biscuits, or other plain crackers.

Antispasmodic

Supper or Lunch:

Fresh boiled or broiled fish, (only fish with white flesh) or oysters. Boiled or poached eggs. Cream cheese, Swiss cheese, pot cheese and sweet cream. Boiled rice or noodles or macaroni or spaghetti with butter and sugar only. Mashed, boiled, or baked potatoes. Bread and butter, toast or rolls. Gelatin dessert or pudding or occasionally plain sponge or angel cake or small portion of vanilla ice cream or stewed fruit avoiding sweet syrup. If you carry lunch take a cheese, egg or chicken sandwich.

Antacid

10:00 P.M. Malted milk, fresh buttermilk, milk, weak tea with sugar and cream, graham crackers, Uneeda biscuits, or other plain crackers.

Antispasmodic and antacid

Drink water as you wish. You may drink any plain carbonated water as White Rock, Vichy, Poland Water, Kalak, Seltzer, and Saratoga Water. A small glass of diluted orange, tomato (plain) or grapefruit juice must be taken daily with a meal.

Many patients are sensitive to and made ill by milk. If this is true in your case take the tea and crackers between meals.

If any questions arise call the doctor.

given resin as an antacid while being prepared for surgery. Two other obstructed cases responded for some time to resin therapy but later they required subtotal gastric resection.

The remainder of the hospitalized cases (5) had complicated duodenal ulcers of many years' duration. Nine of the 10 cases that were not resected but were hospitalized have been free of symptoms for from one to fifteen months. Two recurrences have occurred in one patient at five and nine months. He is a watchman, works nights, and is unable to follow an ulcer regimen. Both recurrences responded to the Hospital Diet carried out at home.

Ambulant Patients—Of the 73 patients started on the Semi-Ambulant Diet and later placed on the Diet for Quiescent Ulcer, 67 have been symptom-free for from one to fifteen months. Two had recurrences after disregarding their diets but improved promptly on a return to a rigid regimen. One patient who was reported not to have responded originally to resin therapy but to gastric lavage responded to resin on a second trial five months later. Two patients failed to remain symptom-free either on resin or on other antacids. One patient who obtained no benefit from resin does well on an aluminum hydroxide suspension.

Seventy-seven or 85 per cent of our patients have been kept symptom-free on our ulcer regimen, using resin as the only antacid. One previously reported failure on resin therapy was found to have had a duodenal neoplasm and is excluded from present figures. He responded well temporarily to another antacid.

None of our patients have had any side effects as a result of resin therapy. Particularly noticeable is the lack of complaints regarding constipation and diarrhea and also the freedom from bloating and gas.

At present, the resin is dispensed in capsules. As is generally known, gelatine capsules themselves cause heartburn in some people. Technical difficulties have to date prevented the manufacture of compressed tablets. When this difficulty is overcome, the resin should enter into combination with the gastric acid more quickly and further improve our treatment.

SUMMARY

1. An antacid synthetic resin has been described.

2. Its usefulness in the treatment of peptic ulcer is discussed.

3. Diet and medication schedules for treatment of peptic ulcer are presented.

4. Synthetic antacid resins do not have any untoward effect on the digestive tract. They cause neither constipation nor diarrhea. Since they are not absorbed, they do not alter the acid base balance of the body. Since they can be cheaply produced, they should replace the antacids now in use.

The Preparation of Photographs for Publication

A Scientific Exhibit From

S. J. McCombs

Photographic Division, Mayo Clinic, Rochester, Minnesota

A critical appraisal of reproduction of photographs in the biologic field often reveals a serious lack of quality that all too often impairs the illustrative value of such reproduction. A medical illustration, specific and informative in nature, requires the utmost care in preparation to achieve the purpose for which it was made.

Successful reproduction depends on photographs of high quality. Faults in preparation or errors in technic lend themselves to improvement or correction rather simply in most cases. The main factors influencing improved photographic quality are: (1) accurate focus; (2) backgrounds suited to the subject material; (3) suitable lighting; (4) subordination of distracting elements; (5) elimination of non-essentials; (6) printing paper of proper contrast; (7) correct printing exposure, and (8) full development.

As this material was originally presented as an exhibit, the exhibit format will be retained in this somewhat expanded review of these factors.

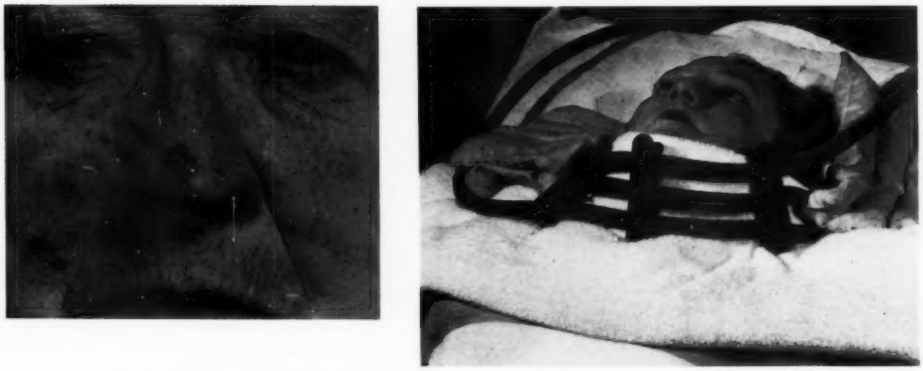
Accurate Focus

Factual recording is basic to all biologic photographic illustration, and sharpness of focus is essential to factual recording (fig. 1). Sharpness in an illustration depends on accurate focusing and freedom from camera or subject motion. A constant complaint of editors is the receipt of fuzzy, out-of-focus pictures to illustrate an article. Such pictures, when used, actually detract from a paper because they cannot hold the attention of the reader.

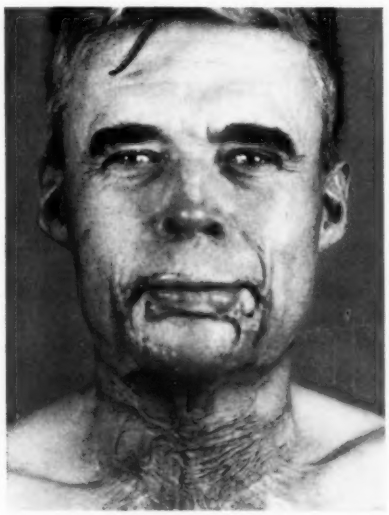
Aids to obtaining sharp focus are ground-glass focusing, a tripod for supporting the camera, and a small lens aperture to increase the depth of field. Focusing is usually done at full lens aperture and by selecting the most important aspect of the subject to be in the plane of critical focus. Stopping down the diaphragm increases the sharpness of near and far points, that is, depth of field. Far depth is greater than near depth.[1]

Sometimes a compromise must be effected between lens aperture and illumination, as an unduly small aperture requires a long exposure or a great intensity of light.

FIGURE 1



Left. *Lack of sharpness on point of chief interest detracts from illustrative value and fails to hold attention of the reader.* **Right.** *Good definition throughout the entire subject area makes this an interesting illustration.*

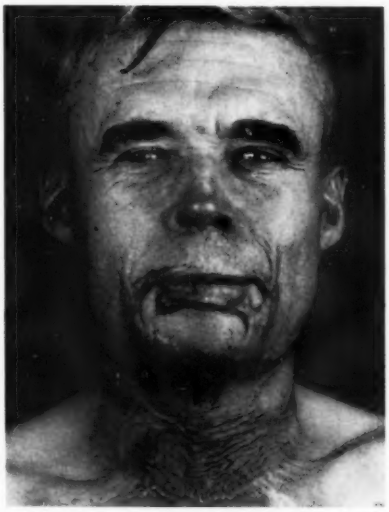


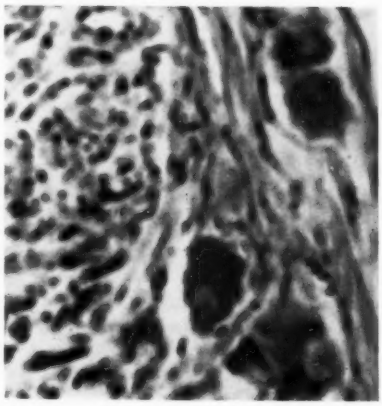
Left

Lack of sharpness in photograph.

Right

Use of a small lens aperture and increased light intensity has obtained greater over-all sharpness than is present in photograph opposite.





Left

Lack of sharpness obscures the detail necessary for the interpretation of this photomicrograph. Sharpness and good definition are essential for making good photomicrographs.

Right

Sharpness and good definition in photomicrograph of same section shown opposite.

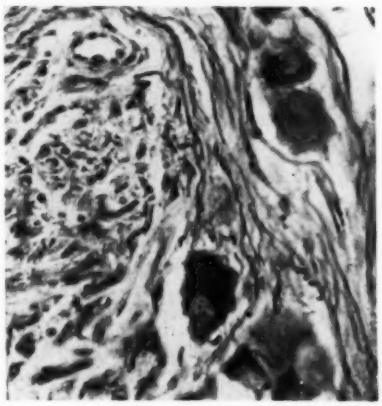


FIGURE 2

a. Extreme angle lighting with strong contrasts reproduces poorly. b. More even lighting results in a pleasing illustration that will reproduce well. c. An example of single flash lighting. The flashlight was directly above the lens in this instance. d. Cross light; that is, a strong side light calls attention to a defect. Sufficient general illumination was used to prevent shadows from blocking.

While ground-glass focusing is not an essential in biologic photography, it offers enough advantages to make it almost a "must." Since the majority of photographs are made at less than normal lens-to-subject distances, very accurate focusing is necessary.

LIGHTING

Proper lighting is second only to sharp focus as a requisite for biologic illustration (fig. 2). In simulation of natural lighting, the main light source should be from slightly above the subject so that the shadows will fall below and thus create a bit of modeling. In general, harsh lighting effects should be avoided. Balanced lighting is recommended for most clinical material. One light may be placed close to and higher than the camera, and a second light may be placed at about camera height on the other side and slightly farther from the subject. This arrangement will result in an evenly illuminated photograph with just enough modeling to show all features effectively.

Single flash lighting may be used with the light source close to the lens axis and slightly above it for even illumination of the subject.

Familiarity with basic lighting principles will soon disclose that angle or side lighting may be used to advantage for accentuated modeling, provided sufficient general illumination is used to prevent excessive contrast or blocking of shadow detail.

BACKGROUNDS

In monochrome photography, it is essential to obtain separation of the subject from the background by tonal difference. This can be accomplished by proper choice of background (fig. 3).

In general, light subjects are best photographed with a dark background and dark subjects are best photographed with a light background, although the size at which the subject is photographed occasionally will influence the choice of a background. For example, considering only patients, a full-length view looks very well before a dark background, whereas a facial view only is best before a medium gray background.

A background of a neutral gray is very adaptable, as the intensity of light reaching it determines the tone, which can be varied from light to dark gray. In relation to a subject, simply varying the background to subject distance will achieve this. With the neutral gray background well removed from the subject, less light reaches it; as a result, the background will be darker in the finished photograph.

I have avoided the terms "black" and "white" with reference to backgrounds, particularly for patients. They are often responsible for detrimental side effects. A white background, placed close to the subject, is often responsible for a "kick back" of light on the edges of the subject, while with a black background some portions of the picture area have a tendency to blend in with the background.

DISTRACTING ELEMENTS

It frequently happens that distracting elements are included in a photograph either by accident or of necessity. Jewelry is particularly distracting because it causes

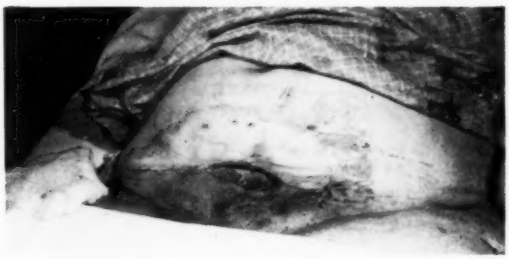
FIGURE 3

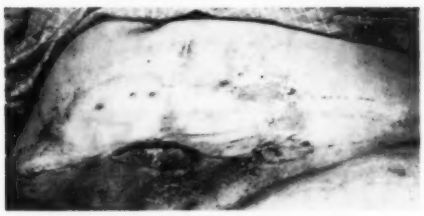
Left. *Displeasing appearance produced by photographing a black-haired patient before a black background. The print would suffer further loss in reproduction.* **Center.** *Same patient as shown at left, but photographed before a gray background. The over-all appearance has been greatly improved.* **Right.** *A dark lung which stands out very well against a light background.*

Left. *Good separation of patient from background.* **Center.** *Variation in tone of background produced by increasing the distance between the patient and the background.* **Right.** *Good general appearance but the dark areas of the skin tend to blend with the dark background. The remedy is to use a lighter background or a strong side light to produce better demarcation of the edges of the legs.*

FIGURE 4

Clothing of distracting color or pattern may be removed or a drape may be placed over the offending material.





Trimming the print closely often effects an improvement.

Jewelry is easily removed, always with benefit.

Careful selection of camera angle results in an improved illustration which has far greater effectiveness. (From Kent, F. W.: Medical photography in a teaching hospital. M. Radiog. and Photog. 23:13-23; 36, 1947.)

reflections which attract attention to themselves. Clothing of distracting color or pattern, dressings, backgrounds and even shadows are other elements that may cause trouble.

The remedy, of course, is to be aware of distracting elements at the time the photograph is made and to take care of the matter at the time (fig. 4). Jewelry may be removed, as may outer clothing. A simple draping of suitable material over the clothing may improve the illustration. Sometimes it is possible to eliminate distracting features by trimming of the print.

Dressings may be removed and the involved area cleaned. If it is not advisable to remove them completely, they may be folded back and the area draped with towels or other suitable material.

An inclusive photograph of large rooms such as laboratories or wards, often may be improved by a change of viewpoint which will minimize, if not altogether eliminate features which would prove objectionable.

Printing

Technically good prints are the result of correct exposure on the proper grade of paper (fig. 5).

While correct lighting and exposure in negative making cannot be too strongly emphasized, it is the finished print that determines the quality of the reproduction.

FIGURE 5

Lack of brilliance and low tonal range result from the use of a paper of low contrast.

Chalky highlights and dense shadows cause a general loss of modeling. Paper of too great a contrast was used.

FIGURE 5 (Continued)

A good range of tones from highlights to shadows that will reproduce well. The printing paper was suited to the negative.

Underexposure, usually accompanied by forced development, produces a gray, flat, weak print entirely unsuited for reproduction.

Overexposure results in a muddy, sometimes mottled print which has poor tone and is lacking in brilliance.

Proper exposure and development produce a print which has good detail thoroughout.

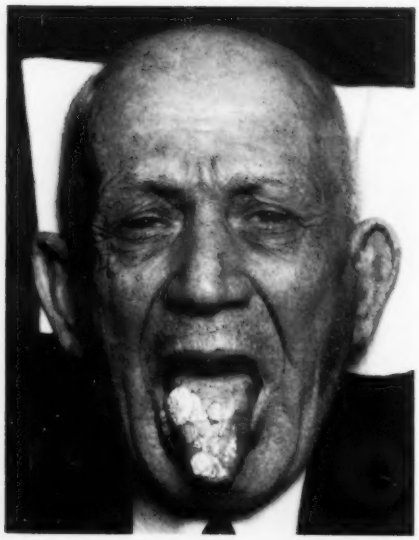
Many good illustrations suffer loss of quality by faulty technical handling in the photographic printing process.

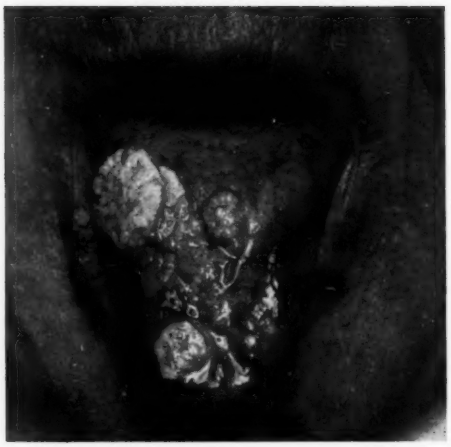
The ideal print is one that correctly reproduces in their proper relation and depth all the variations of light and shade of the original. It is the result of the successful combination of proper exposure time on the paper best suited to the negative. Paper contrast determines the range of tones in a print and exposure time controls the density of the print. A paper that is of low contrast, that is, too soft for a negative, yields a print of short tonal range which lacks contrast and brilliance. Conversely, chalky highlights and dense shadows result from use of a paper of high contrast. It must be borne in mind that it is the full range of middle tones that reproduces best.

Exposure and development are so interrelated that one cannot be considered without the other; however, if recommended development time and temperature are adhered to, errors due to these factors can be eliminated, and only the exposure factor need be considered.

Underexposure records only the gradations in the thin portions of the negative

FIGURE 6



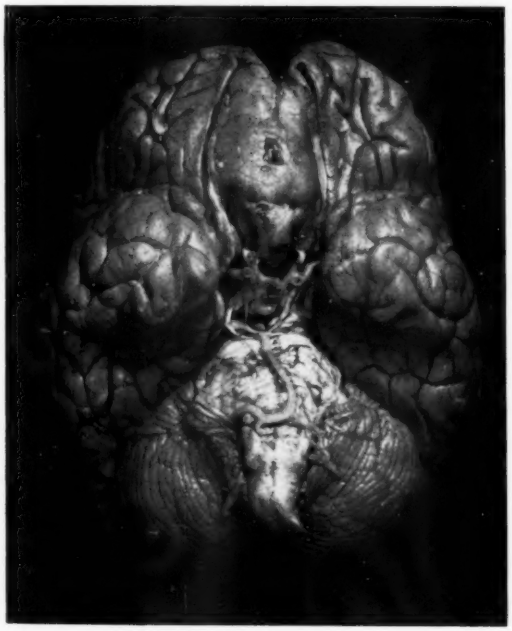


Above. *Showing the entire face in photographing a lesion of the tongue, for example, is not necessary or advisable.* **Upper right.** *Trimming to the area of interest serves to concentrate attention.* **Lower right.** *A better treatment is to enlarge the area of interest.*

FIGURE 6 (Continued)

This subject requires the full length but not the full width.

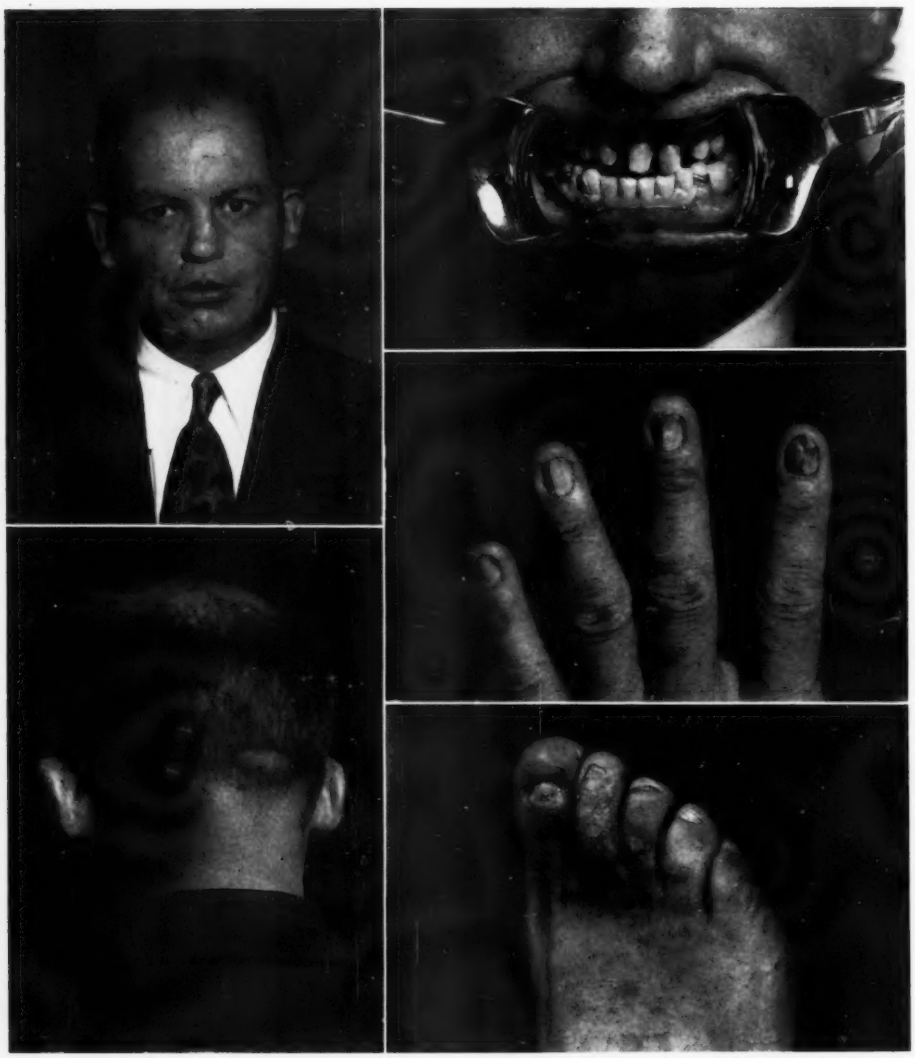
Marking the print at the borders is a good way to indicate necessary trimming.



Left. *Trimming the sides improves the illustration.*

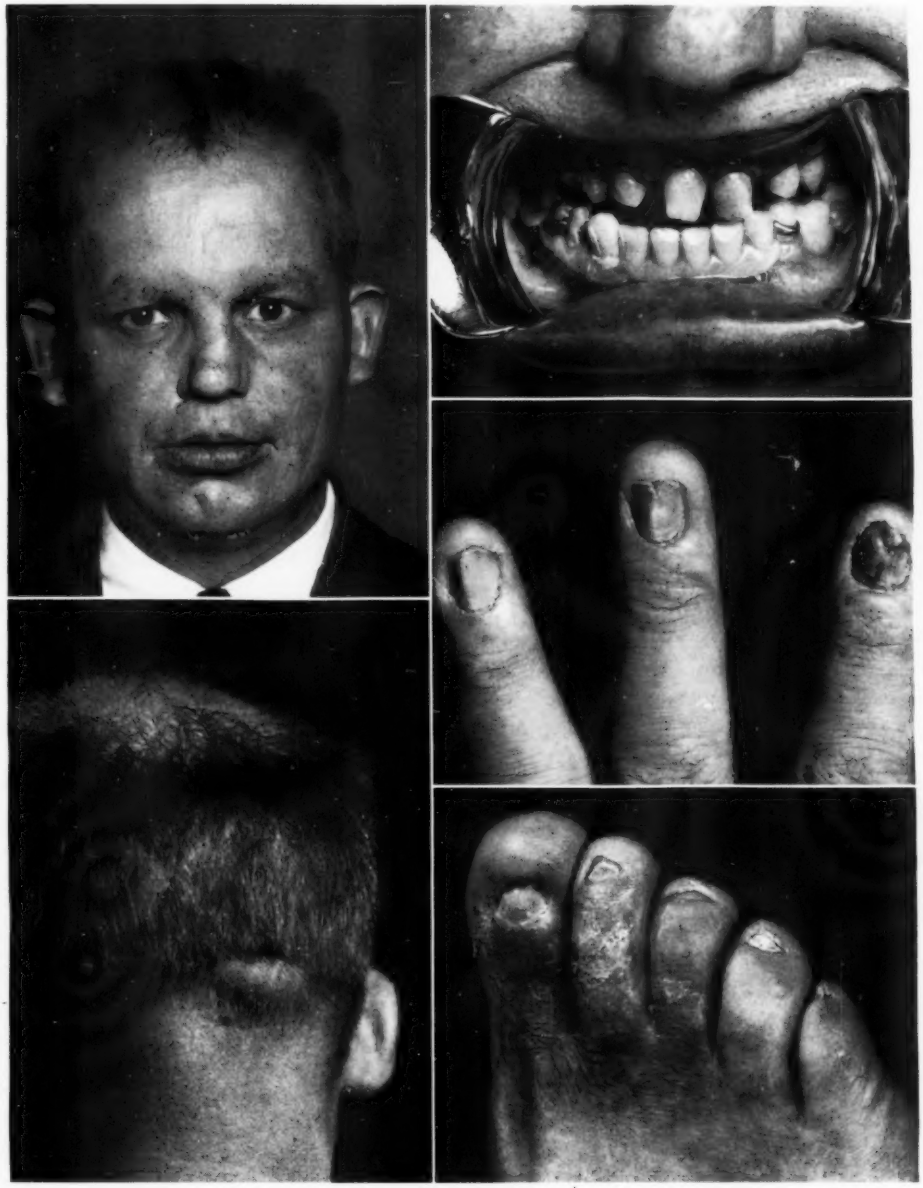
Above. *An example of rephotographing the subject close up to center attention and gain detail.*

FIGURE 7



Contact prints simply mounted together for a layout.

FIGURE 8



Judicious trimming has reduced the over-all size of prints in figure 7, yet has retained the essentials of each individual picture.

and results in a flat, weak print. If an underexposed print is forced or given prolonged development, fog results. Overexposure produces a print that has a general muddy appearance, flattened highlights and smudgy shadows with no detail. Underdevelopment does not correct overexposure. The end result of such treatment is a mottled, muddy print entirely lacking in brilliance.

Trimming Prints

Trimming prints, like the editing of movies, is done far too infrequently. The inclusion of excessive area or unnecessary surroundings in medical photographs is one of the major complaints of editors (fig. 6).

Attention should be centered on the point of interest by including in the reproduction only that which is necessary to illustrate properly the point being made. This is done initially by proper photographic technic or subsequent enlarging, and secondarily, by proper trimming of the print.*

In general, only sufficient surrounding area for purposes of orientation is necessary. Trimming to the essentials serves to concentrate attention and lends force to an illustration. It is similar to viewing a microscopic field at a higher magnification.

Grouping of Prints of Related Material

The grouping or combining of prints in a layout can contribute to an improved effect (figs. 7 and 8). There is economy of plate cost and economy of space. The reproduction is neater in appearance and the over-all size may be increased. There are dangers in this practice, however. The first point to consider would be to secure editorial approval of the layout principle. In arranging a layout, the proportion of the journal page must be taken into consideration for maximal utilization of the page space.

A contributing factor to over-all appearance is uniformity of backgrounds. Each unit in a layout should be properly identified as to its top, the article it accompanies and its position in the layout. It should be lettered to correspond with the legend.

An alternative method for actually mounting the prints in a layout is to indicate on a transparent overlay how the individual pictures should be placed.

Reference

1. Gibson, H. L.: Depth of Field in Medical Photography. M. Radiog. and Photog. 22:22-28, 1946.

Some editors prefer to do their own trimming of prints for publication. Here again, a transparent overlay on the print, bearing suggested trimming marks, is useful; or guide marks may be placed at the EDGES ONLY to indicate the area to be used.

Book of the Month—A Report

SKIN MANIFESTATIONS OF INTERNAL DISORDERS*

In this work, Dr. Wiener has attempted to bridge the gap between internal medicine and dermatology. Dr. Wiener is a dermatologist and his approach to the problem therefore is that of the specialist in his field. He is interested in the dermatologic aspects of internal diseases in this book, not in the related topic of visceral aspects of skin conditions. Thus the skin changes in such conditions as endocrine disturbances and infections are considered while psoriasis is not mentioned. He has obviously aimed his text at internists and related practitioners of medicine rather than writing for colleagues in his specialty.

Dr. Wiener is the dermatologist for Mt. Sinai Hospital, Deaconess Hospital, and St. Michael's Hospital, Milwaukee, Wisconsin. From the richness of his foreign references, especially German references, it is evident that he is thoroughly familiar with the European contributions to skin disease. He has drawn heavily upon his experience in German clinics for his descriptions and illustrations of dermadromes, a term coined to mean skin manifestations of internal disorders. He does not include a consideration of syphilis in his treatise and he defends this omission in his preface, explaining that this disease represents an entire division of medicine. He does however consider cutaneous tuberculosis and related dermatoses.

Included in the chapter on dermatoses with claimed but still controversial tuberculous etiology are his discussions of Boeck's Sarcoid and lupus erythematosus. This reviewer is disappointed in the sketchy consideration of the internal aspects of these diseases in spite of the fact that the topic set for this book is "Skin Manifestations." One would expect fuller treatment for two such prime examples of diseases in which the skin and the internal organs share heavily in the division of pathology affecting them. The chief criticism of this book is that in attempting to cover the topic the author set for himself, in important points the cover is stretched thin.

Figure 308. Lymphatic leukemic tumors. (Courtesy Dr. M. Jessnet.)

However, there is no doubt that there is much fruitful knowledge in Wiener's book for physicians whose main interest in the human body lies under the skin. There are many esoteric manifes-

*Skin Manisfestations of Internal Disorders. By Kurt Wiener, M.D., Dermatologist, Mount Sinai Hospital, Deaconess Hospital, Saint Michael's Hospital, Milwaukee, Wis. 690 pages, with 386 text illustrations and 6 color plates. C. V. Mosby Company, St. Louis, 1947. Price $12.50.

TABLE VI. HEMORRHAGIC DISEASES
Compiled After Quick, Haden and Other Sources

	SYMPTOMS, ESP. DERMADROMES	FUNDAMENTAL DEFECT	PLATELETS (NORMAL COUNT 250-500,000)	COAGULATION TIME LEE-WHITE NORMAL 5-8 MIN.	CLOT RETRACTION TIME NORMAL 30-60 M'N.	TOURNIQUET TEST (CAPILLARY RESISTANCE)	BLEEDING TIME NORMAL 1-3 MIN.	MISCELLANEOUS
Hemophilia	Dangerous bleeding from trauma, abscesses, etc. Bruise easily. Ecchymoses. Hermarthrosis	Hereditary failure of platelets to disintegrate and to release thromboplastin	Normal	Prolonged	Normal	Negative	Normal	Male patients. Female conductor. Very rare. Bleeding after injury delayed
Pseudohemophilia	Same as in hemophilia but milder	Hereditary failure of capillaries to contract after injury	Normal or high	Normal	Normal	Negative or slightly positive	Prolonged	Both sexes affected. Rare
Hereditary (familial) Purpura Simplex	Spontan. ecchymoses or just bruise easily		Normal	Normal	Normal	Positive	Normal	Common
Afibrinogenemia (pseudohemophilia of the German lit.)	Like hemophilia, ecchymoses	Lack of fibrinogen prob. inherited		Prolonged. Blood incoagulable			Normal	Extremely rare
Osler's Disease. Hereditary Hemorrhagic Telangiectasia	Increasing number of telangiectases which bleed easily. Cheeks, lips, ears, tongue. Dangerous recurrent epistaxis	Hereditary capillary defect	Normal	Normal	Normal	Negative	Normal	Both sexes, secondary anemia. Hepatosplenomegaly in advanced cases
Thrombocytopenic Purpura. Werlhof's Dis.	Crops of *petechiae* and ecchymoses over whole body. Severe *mucosal* bleeding. Severe hemorrhage from wounds. Bruise easily (shins). Urticarial character of fresh lesions. Mucosal bleeding severe.	Failure of megakaryocytes in bone marrow to furnish enough platelets. Depressing influence of spleen	Low	Normal	Absent	Positive	Prolonged	Effect of splenectomy. Intradermal moccasin snake venom, O.I.C.C. of dilution 1/3000 elicits hemorrhagic reaction
Nonthrombocytopenic or Anaphylactoid Purpura. Schönlein's Purpura	*Urticarial component* of purpura. *Petechiae* in urticarial lesions which appear in crops, esp. over legs, face, bends of large joints; palms, soles often free	Allergy; infection	Normal	Normal	Normal	Mostly positive	Normal	Articular swelling common (purp. rheumatica)
Henoch's Purpura	Similar to Schönlein but severe *gastrointestinal* symptoms	Allergy; infection	Normal	Normal	Normal			
Purpura Fulminans	Hyperacute *suffusions covering large areas*		Normal	Normal	Normal		Normal	Mostly fatal. Very rare
Waterhouse-Friederichsen Syndrome	Hyperacute petachiae and ecchymoses, coalescent to large areas	Massive adrenal hemorrhage. Meningococcic infection in most cases.	Low	Normal			Normal	Fatal. Rare. Mostly small children

Figure 337. Congested veins in carcinoma of the esophagus.

tations of disease that appear in the skin and Dr. Wiener is ingenious in discovering an amazing variety for inclusion in his work. He has included many rare diseases and tropical conditions that are not seen in this country.

In his discussion of endocrine diseases one wonders whether the author is not claiming too much for the field of skin diseases. Certainly the description of the skin changes in hyperthyroidism does not add significantly to the sum of knowledge of this disease. He writes of thyrotoxicosis: "The skin is moist, warm, and rosy but the color is unstable. The elevation of the temperature is roughly proportional to the increase in the metabolic rate. . . . The patients usually complain of excessive warmth and like to sleep with the limbs uncovered." Although what he is describing is absolutely obvious, there is a certain value in calling attention to these patent signs. It emphasizes the fact that the skin plays an important role in general diseases; that no general examination is complete without inspection of the skin.

Study of Wiener's text will direct attention of internally minded physicians to the surface of the body not primarily for the diagnosis of skin conditions but rather for appreciation of the conditions which form the title of this book.

Texts on skin lend themselves well to illustration. This book is no exception. There are six beautifully executed plates in color, and black and white illustrations on almost every page. There are also seven tables one of which is reproduced here.

NOTICE

Applications for Part I of the examination of The American Board of Orthopedic Surgery must be received by the Secretary, Dr. Francis M. McKeever, 1136 West 6th Street, Los Angeles 14, California, *not later than* January 15, 1948.

Information relative to examining centers and dates will be announced at a later date.

THE AMERICAN BOARD OF ORTHOPEDIC SURGERY, Inc.

MEN OF MEDICINE

ELLIOTT CARR CUTLER*

One of the great surgeons of our time at last has answered the summons of the Great Physician. There was a cruel want of urgency in this summons. The Angel of Death first came to notify General Cutler during the last days of the war in Europe, but he was too absorbed in his military duties to attend to any such personal business. She was reasonably patient until his work in Europe was finished; but, upon his return to the United States in August, 1945, she became so insistent that he went to his old friends in the Peter Bent Brigham Hospital for examination.

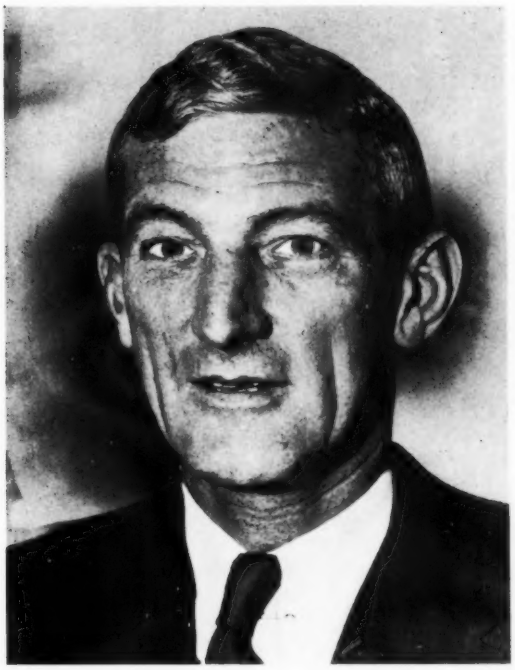
After this examination, no longer could her presence be denied or her message misunderstood. Elliott greeted her calmly, with the unfailing courtesy that characterized all of his personal relations. From that moment on, he lived with her by day and by night, never complaining of her presence, never whimpering from the pain that she intensified progressively, always resisting her impetuous demands for greater haste.

Death is one experience with which familiarity rarely breeds contempt. To face death bravely for two years, with full knowledge that there can be no escape—only a brief reprieve—requires a degree of courage with which few men are endowed. General Cutler's life has been an inspiration to many of his associates, but never was it more inspiring than during these last few months. He continued to work with zeal undiminished, and he contributed enthusiastically to plans, of which the pleasure of execution he well knew would be denied him. The intolerable pain he suffered was apparent only in deepening lines in his face which his cheerful smile could not erase. His back bowed and his steps lagged, but never his spirit faltered. He was conquered, but he never surrendered. Old disagreements, old discords, even old enmities, gave way before this example of courage and of self-sacrifice rarely equalled; and all who knew him in these last days will remember him only with admiration and affection.

Elliott Carr Cutler was born in Maine of rugged colonial ancestry. The foundation of his character was formed of the austere virtues of the tough stock from which he sprang; but upon this forbidding rock he built a personality distinguished by kindliness and loyalty to his friends. An innate honesty often compelled his professional judgments to be severe; but wherever possible, they were softened with praise of other qualities. His high ideals and his devotion to duty made him, in his younger and formative years, somewhat intolerant of mediocrity; and this occasionally brought him into conflict with others. But the years brought him the wisdom that recognizes the impossibility of universal perfection, and a tolerance for human weakness that fell short only of abridging his high principles. He required a lot of knowing, did Elliott Cutler; and casual contact rarely revealed the true fineness of his character.

His professional career was one of high distinction. Educated at Harvard, he received most of his surgical training under Harvey Cushing. As a young medical officer in World War I, his service was of a quality that earned for him the Distinguished Service Medal, an unusually high award for so young a man. In 1924, he was called to

*Reprinted from Military Surgeon, October, 1947.



ELLIOTT CARR CUTLER, M.D.

New York Times Photo

Western Reserve University as Professor of Surgery; and, eight years later, his alma mater recalled him to succeed his famous teacher as Moseley Professor of Surgery, a position which he held until his death.

But his greatest contribution to his fellowmen was made in World War II. Shortly after Pearl Harbor he re-entered the Army, and was sent to the European Theater of Operations as the Chief Consultant in Surgery. His wisdom and his wide experience made him invaluable. His inexhaustible energy became proverbial among his fellow officers. He organized, he planned, he criticized, he praised. He was here, he was there; and he invariably subordinated his personal comfort and the prerogatives of his position to the task at hand. It was the end, not the means, that was important to Elliott Cutler, and this was one measure of his greatness. To him, more than to any other man, is due the credit for the fine medical care given the wounded in the European Theater. His tangible rewards were pitifully inadequate—elevation to the rank of Brigadier General, and the awards of an Oak Leaf Cluster for his Distinguished Service Medal and the Bronze Star Medal. Foreign governments were pleased to honor him, and learned societies, both abroad and at home, honored themselves as well as him in conferring their distinctions. But he placed a much higher value upon the gratitude of his patients and the devotion of his young subordinates.

He gave his four sons to the service of his country. He was terribly proud of them, and rightfully so. The loss of one of them would have grieved him deeply, but he would have regarded it as not too great a sacrifice for the cause in which they fought together.

Surgeon, scholar, husband, father, American, a great gentleman has left us. He will be sorely missed, and few of us will be privileged to see his like again.

PAUL R. HAWLEY,
Major General, U.S.A. Ret.

EDITORIALS

ETIOLOGY OF MONGOLISM

In a sampling study of some 14,000 births occurring over a thirteen-year period in Massachusetts, Beidleman found that mongolism occurred in 3.4 per thousand live births. Projection of these figures from Massachusetts to the country as a whole suggests that there are about 7,000 mongoloid babies born each year in the United States.

Many theories of causation have been proposed. Relatively advanced age in the mother has been suggested. Recently because of studies on maternal rubella and its apparent relationship to the development of anatomic defects in the infant occurrences during fetal life have received attention.

Ingalls has recently reviewed the evidence concerning the possible effect of maternal disease on mongolism. He emphasizes the physiologic events pertinent to mongolism occurring in the sixth and ninth week of fetal life. For example, the persistence of ostium primum indicates that the septum primum and the endocardial cushion develop adequately until about the seventh week when they are arrested just short of fusion. The mystery of the association of the observed arrests of the middle phalanx of the fifth finger and those of the nasal bones with mongolism disappears, he says, when they are considered as synchronisms.

Summing up the evidence which he has been able to collect, Ingalls says that there is satisfactory teratologic evidence that the times of origin of the developmental arrests, which characterize mongolism, synchronize at about the eighth week of gestation. Likewise, there is ample epidemiologic evidence of a significant association between maternal disease operating at about this period of gestation.

If this genetic hypothesis is correct, it would seem apparent that there is no specific maternal factor involved but that more than one of several conditions could act in the same manner during this period of gestation. In addition to rubella, a high incidence of gestational hemorrhage has been found to occur during this period among mothers of mongoloid infants. Lead poisoning and poor nutrition have been mentioned as additional causative agents. Ingalls suggests that all of them may act through affecting the oxygen supply of the fetus with temporary starvation and accumulation of toxic metabolites. The theory as proposed suggests that the causative *mechanisms* leading to mongolism operating at about the eighth week of fetal life are few in number, but that the causative *agents* are relatively numerous.

The theory proposed by Ingalls must be reconciled with other evidence such as that which relates mongolism to a high maternal age. The latter could be explained theoretically by a lessened ability of the older tissues to provide oxygen to the fetus, or by their heightened susceptibility in later years to harmful agents. Whether Ingalls' theory is correct or not, it is encouraging that active studies on mongolism are taking place with increasing frequency.

E. P. J.

VITAMIN D IN CUTANEOUS TUBERCULOSIS

DURING the past five years or so, numerous European investigators have submitted evidence that vitamin D is effective in the treatment of cutaneous tuberculosis. Not too much attention has been paid these reports, because, for one thing, the disease is rather uncommon in this country. Nevertheless, the occasional case that the physician sees justifies mention of this apparently valuable therapeutic measure.

A recent issue of *The Lancet* carried a report of a symposium on the subject, which had been presented at the International Conference of Physicians in London. Nearly a dozen investigators voiced their opinions on the use of Vitamin D in cutaneous tuberculosis.

Charpy, who has been working with the technic for seven years, administers 15 mg. (60,000 units) of the drug, in alcoholic solution twice weekly for four weeks, followed by the same dose weekly for periods ranging from four months to two years. Beneficial effects should be noted by the fifteenth day. If symptoms of toxicity appear, the treatment should then be stopped.

Various other investigators reported good results with similar treatment. Dowling has treated 44 patients since early 1946, of whom 28 are now free of lupus. Lumholt of Denmark reported cures in 80 per cent of his lupus cases. Grzybowski has seen a great increase in cutaneous tuberculosis in Poland since the War. He has observed 500 new cases in six months; of 100 cases which he treated, 69 are cured or nearly so, and another 26 have shown great improvement. Other investigators, including Gitken, Ingram, and Feeny were not convinced, from their studies, that vitamin D solved the treatment problem of lupus.

Recently, Michelson and Steves, American workers, have reviewed the field and presented 6 cases of their own. Their small number of cases, as well as the short period of observation (two to five months), does not justify any far-reaching conclusions. However, they do affirm that all of their patients, 5 of whom were old cases that had resisted other forms of therapy, have shown an initial and progressive improvement. The American investigators believe that viosterol in oil is more effective than the alcoholic solution used by Charpy. Recommended dosage is 150,000 international units daily; a quart of milk likewise is consumed every day. Toxic reactions should be watched for, although Michelson and Steves regard the dosage herein recommended as considerably less than the toxic dose; however, various authors have reported reactions of greater or less severity.

E. J.

FOLIC ACID

IT NOW appears that folic acid (which belongs in the vitamin B group) or its chemical relations, deserves an important place in the therapeutic armamentarium for certain of the anemias. The evidence is conclusive that folic acid is helpful in macrocytic anemias of children and in sprue which may be related by reason of a common origin in a deficient dietary. Whether true or not, folic acid deserves a place in the management of these conditions.

The exact part which folic acid can play in other forms of anemia is not so certain. For example, early reports indicated that folic acid causes a rapid improvement in the blood picture of pernicious anemia. Although this observation has been confirmed, it also seems evident that folic acid does not prevent the progress of pernicious anemia as effectively as liver preparations do. Some of the patients with pernicious anemia treated with folic acid alone develop signs of spinal involvement. For this reason, it would seem highly inadvisable to attempt to treat patients with pernicious anemia with folic acid exclusively, at least until the question has been solved as to why neurologic signs develop in the face of this treatment.

Similarly, further work on folic acid in other types of anemia is needed. Thus, as is true with the introduction of almost any new therapeutic preparation, limitations and disadvantages in certain directions have been revealed, leaving behind a hard core of therapeutic usefulness.

DIABETES

DIABETES is probably much more prevalent than has been commonly supposed. In 1937 the United States Public Health Service estimated that in the continental United States there were 660,000 diabetic persons, about 0.37 per cent of the population. Later estimates have been consistently higher. Marks estimates the number to be 675,000, and Joslin believes there are one million living diabetics in this country. Other writers, basing their estimates on selected groups of individuals, likewise have arrived at relatively high figures.

Recently, the United States Public Health Service made its first community study of diabetes. The object was to evaluate the various technics of case-finding, as well as to determine the prevalence of diabetes in a typical American community. Oxford, Massachusetts was the community selected; the population was 4,983, of which 3,516 persons were studied. The study was based on case history, urine and blood sugar tests, and dextrose tolerance tests.

Seventy cases of diabetes were found, of which 30 were new cases, discovered in the course of this survey. This was a prevalence of 2.0 per cent of all persons tested. Since probably every known diabetic person in the community was represented in this group, the incidence of 2.0 per cent could not be accepted for the community as a whole. However, extrapolation of the data from the tested cases, to include the 1,400 untested persons, would yield for Oxford an incidence of 1.7 per cent. The survey revealed that for every 4 known cases, there were 3 other previously undiscovered and unsuspected cases of diabetes.

This survey points the way to better and earlier recognition of diabetes. Earlier and more adequate care means fewer complications and deaths from this disease.

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This Month in Medicine

INSOLUBLE PENICILLIN

THE "Romansky Formula" has been the best agent, to date, for prolonging blood levels of penicillin. Various investigators, however, have toyed with the idea of using insoluble penicillin salts to accomplish this effect.

Recently, Monash has presented data which indicate that although many insoluble penicillin salts are inactive, they are reactivated *in vivo*. As a control, Monosh inoculated intramuscularly in a rabbit 20,000 units per kg. of penicillin suspended in peanut oil. No readable blood levels existed after five hours. But similar injections of silver penicillinate yielded a blood level of 0.08 units per cc. at seventeen hours and 0.3 units at twenty hours.

Mercury penicillinate, ferric penicillinate, as well as insoluble organic salts of penicillin likewise are reactivated *in vivo*, and yield prolonged penicillin blood levels.

SUGGESTED READING

MONASH, S.: Use of insoluble penicillin salts for the prolongation of penicillin blood levels. Science 106:370 (October 17) 1947.

MATERNAL NUTRITION AND THE INFANT

THE Fifth International Congress of Pediatrics devoted a section to "Prematurity, the Newborn, and Growth." Congenital malformations of greater or less severity were shown to be produced in rats whose mothers were fed diets deficient of riboflavin or vitamin A. Other investigators pointed out that reduced birth weights and lengths attended the period of starvation in Dutch cities during 1944 and 1945.

One of the most interesting studies was that which correlated poor maternal diet with poor physical condition of the newborn infant. A group of 216 pregnant women were studied.

The majority of stillborn infants, neonatal deaths, premature infants, and infants with major congenital defects were born to mothers whose diets were poor or very poor. Mothers on the better diets had fewer complications of pregnancy; their babies were healthier, heavier and longer, with better osseous development, and in general, with higher pediatric ratings. During the latter part of pregnancy the mother should consume at least 75 grams of protein daily.

SUGGESTED READING

WARKANY, J., *et al.*: Congenital malformations induced in rats by maternal riboflavin deficiency. Quart. Rev. Pediat. 2:493 (August) 1947.

———: Congenital malformations induced in rats by maternal vitamin A deficiency. *Ibid.*

SMITH, C. A.: Wartime undernutrition in pregnancy. *Ibid.* 2:494 (August) 1947.

BURKE, B. S., *et al.*: Relation of maternal nutrition to condition of newborn infant. *Ibid.* 2:496 (August) 1947.

JAUNDICE AND PLASMA

INDISCRIMINATE transfusion of pooled blood or blood-products involves a risk that might well outweigh the advantages of the transfusion. Many months ago, evidence was presented that pooled plasma often contains the virus of homologous serum jaundice. Among some groups of war casualties which had been treated with blood plus pooled serum or plasma, as many as 10 per cent developed homologous serum jaundice. In other groups of patients the incidence of jaundice rose to as high as 60 per cent. Deaths have been reported also.

In spite of the warnings that have been sounded, however, physicians continue to use pooled plasma, primarily because its life-saving properties are regarded as more important than the risk of infection. That great caution should be observed in the use of this material is emphasized once again in a recent article by Brightman and Korns.

These investigators made a follow-up study of 649 patients who had received transfusions of dried pooled plasma. Homologous serum jaundice developed in 4.5 per cent of this group. During a seven-month period, at least 12 persons in upstate New York died of homologous serum jaundice. These figures probably illustrate a condition that exists throughout the country, but which as yet has not been recognized and appreciated.

SUGGESTED READING

EDITORIAL: Syringes, serum, and jaundice. Brit. M. J. 1:810 (June 9) 1945.

MAUNSELL, K.: Transmission of hepatitis during blood transfusion, Brit. M. J. 2:783 (December 1) 1945.

GROSSMAN, C. M., and SAWARD, E. W.: Homologous serum jaundice following the administration of commercial pooled plasma. New England J. Med. 234:181 (February 7) 1946.

SPURLING, N., *et al.*: The incidence, incubation period, and symptomatology of homologous serum jaundice. Brit. M. J. 2:409 (September 21) 1946.

SCHEINBERG, I. H., *et al.*: Homologous serum jaundice. J.A.M.A. 134:841 (July 5) 1947.

BRIGHTMAN, I. J., and KORNS, R. F.: Homologous serum jaundice in recipients of pooled plasma. J.A.M.A. 135:268 (October 4) 1947.

ONE-DAY SYPHILIS TREATMENT

Since the days of Ehrlich, the physician and scientist have sought a one-day cure for syphilis. Arsenic, bismuth, fever, and various combinations of these therapeutics have been tried and found lacking. Recently, Bundesen and his associates sought to cure syphilis in one day by inoculating each of a series of patients with 10,000,000 units of penicillin.

One hundred twenty-nine patients composed the series. All revealed dark-field evidence of primary or secondary syphilis. The 10,000,000 units of penicillin were administered by intravenous drip, over a twenty-four-hour period. The experiment was a failure. At least 61 of the patients relapsed, of which 51 relapsed in four months or less. Thirty-six of the 129 were not followed, but one may assume that several relapses occurred in that group, as well.

The investigators point out that various schemes of treatment employing a total of 600,000 units of penicillin administered over a period of seven and one-half days, or 1,200,000 units administered in three and three-quarters days yielded results much better than were obtained by 10,000,000 units given in one day.

SUGGESTED READING

BUNDESEN, H. N., *et al.*: Therapy of early syphilis with massive doses of penicillin. Arch. Dermat. & Syph. 56:339 (September) 1947.

RUTIN AND ANAPHYLACTIC SHOCK

Clinically, the differences between true anaphylactic shock and shock induced by histamine are scarcely recognizable. Investigators at Michael Reese Hospital, Chicago, however, have been able to differentiate the two phenomena through the use of rutin. This drug protects guinea pigs against the lethal effects of anaphylactic shock, but not against those of histamine shock. Rutin acts chiefly against capillary permeability. The investigators therefore assumed that death caused by anaphylactic shock must be brought about through some deleterious alteration in capillary permeability. The exact role of histamine in anaphylactic shock cannot be assayed; but the authors suggest that rutin might prevent the liberation of endogenous histamine.

SUGGESTED READING

RAIMAN, R. J. *et al.*: Effect of rutin on anaphylactic and histamine shock. Science 106:368 (October 17) 1947.

TRANSMISSION OF LEPROSY

The mode of transmission and incubation period of leprosy are still subjects of debate. Particularly during recent years, the question has been asked as to whether leprosy can be produced

by inoculating contaminated material from a leper into the skin of an uninfected person. Several experiments, either purposeful or accidental, have been conducted, all of which have given negative or equivocal results. Consequently, a recent report of leprosy developing in two marines who had been tattooed by the same man in Melbourne, Australia, is of interest.

Both the marines and the tattooer were drunk, when the marines submitted themselves to be tattooed, in 1943. During the process, the drunken tattooer broke several needles, but apparently the marines were feeling no pain, and the operator succeeded in producing a fairly legible tattoo.

Two and one-half years later both marines developed leprous lesions at the site of the tattooing. The leprosy was of the maculo-anesthetic or tuberculoid type. Biopsy and bacteriologic examinations confirmed the diagnoses. A third marine who was tattooed by the same tattooer, but on a different day, has not, as yet, shown evidence of leprosy.

These 2 cases provide evidence of the transmissions of leprosy by inoculation.

SUGGESTED READING

Porritt, R. J., and Olsen, R. E.: Two simultaneous cases of leprosy developing in tattoos. Am. J. Path. 23:805 (September) 1947.

TELLURIUM POISONING

Tellurium has become a most versatile component of many alloys of the baser metals. Consequently, cases of poisoning by this metal have appeared. While ordinary exposures to the dust and oxides of tellurium do not lead to serious toxic effects, when poisoning does occur it is most protracted. The most notable complaint is an obnoxious garlic-like odor of the breath and sweat, which may persist for months.

British anti-Lewisite (B.A.L.) appears to be as effective in controlling the symptoms of tellurium poisoning as it is in arsenic and mercury poisoning. One investigator injected 3 patients with B.A.L. in oil, 2.5 mg. per kilogram body weight, deep intramuscularly into the buttock, every four hours for the first twenty-four-hour period, and every six hours for the second twenty-four-hour period. Subsequently, the men were treated on an ambulatory basis with one injection daily for six days. There were no side effects. The garlic-like odor disappeared in a week or two.

SUGGESTED READING

Amdur, M. L.: Tellurium: accidental exposure and treatment with B. A. L. in oil. Occup. Med. 3:386 (April) 1947.

FROSTBITE AND GANGRENE

Gangrene which results from frostbite may be prevented by the timely administration of heparin. Recent studies reported by Lange and his associates, on experimental animals, volunteers, and on patients actually suffering from severe frostbite, have demonstrated that the heparin treatment of frostbite is based on sound rationale.

Following exposure to cold, the red cells in the exposed areas stick together and form occlusive masses. To a considerable extent, at least, this is thought to be caused by an increase in capillary permeability, leading to a rapid movement of plasma from the capillaries.

If heparin is administered within forty-eight hours after exposure, and continued for seven to nine days, the red cell masses do not form. And since gangrene is dependent upon the formation of such masses, gangrene does not occur under heparin therapy. Likewise, the plasma that escaped from the capillaries, and which ordinarily forms blisters and deposits of fibrin, is kept in a liquid and resorbable state by the heparin.

The 15 volunteers who were exposed to experimental frostbite, as well as 2 actual cases of severe exposure to cold, demonstrated that heparinization prevents the formation of gangrene.

Suggested Reading

Lange, K., et al.: Frostbite: physiology, pathology and therapy. New England J. Med. 237:383 (September 11) 1947.

R.W.C.

Consultation Service

This special consultation information service is offered as a regular monthly feature of *Postgraduate Medicine*. Readers are invited to call on this Service for answers to difficult medical problems from members of our Editorial Board best qualified to help. Each question will be answered by mail and those of general interest will be published each month. Address all communications to Consultation Service, *Postgraduate Medicine*, 512 Essex Building, Minneapolis 2, Minnesota.

PENICILLIN FOR RHEUMATIC FEVER

QUESTION: May penicillin be given prophylactically to rheumatic fever patients to prevent recurrences of upper respiratory infectious flareups of the rheumatic fever? I have tried this with one patient using throat lozenges and he developed a painful glossitis. Was it due to the penicillin? It subsided after I stopped the penicillin but I have not tried to start again. *M.D.—Indiana*

ANSWER: The advisability of using penicillin orally for the prevention of upper respiratory infections in rheumatic fever is doubtful. In the first place, the probability of developing resistant strains of bacteria is great, and this resistance may hamper treatment if serious infections occur later. In addition to this objection there is to be considered the effect of oral penicillin on the flora of the bowel, since the production of vitamins by bacteria may be interfered with. This may be a reason for the glossitis noted. The development of allergic reactions of the mucosa to penicillin is another possibility when it is used in this manner.

GONORRHEA PROPHYLAXIS

QUESTION: I recently heard a comment that silver preparations were outdated as gonorrhea prophylaxis for the newborn. If so, what is used in its stead? Penicillin—if so in what strength? Does not the U. S. Public Health Service make a recommendation in regard to this matter?
M.D.—California

ANSWER: At present health departments have not to my knowledge altered the laws enforcing the use of silver preparations as preventive measures in ophthalmia neonatorum.

However, recent work on the use of penicillin, 2,500 units per cc. in isotonic solution of sodium chloride, seems to indicate that the use of penicillin is preferable because it is more efficient and less irritating than silver preparations. See Franklin, H. C.: Prophylaxis against ophthalmia neonatorum; clinical comparison of penicillin and silver nitrate: a preliminary report. J.A.M.A. 134:1230-1235 (Aug. 9) 1947.

ABSORPTION OF BEESWAX

QUESTION: How long does the beeswax in ordinary penicillin in beeswax remain in the tissues? Does it ever provoke a foreign body reaction when used? *M.D.—Michigan*

ANSWER: Mixtures containing beeswax which have been injected subcutaneously or intramuscularly eventually have been completely absorbed in all instances thus far tested. As a rule in the preparation of such mixtures, beeswax is diluted with either peanut oil or sesame oil. This dilution tends to hasten absorption.

Microscopic examination at various intervals after the subcutaneous or intramuscular injection of mixtures of beeswax into animals has shown that the beeswax is soon broken up into small particles and that the area rapidly becomes surrounded and infiltrated with inflammatory cells and foreign-body giant cells. Suitable stains show that the phagocytic cells ingest the wax, apparently removing it from the site of injection. This is in marked contradistinction to mixtures of paraffin, against which phagocytic cells and tissue enzymes have little or no action.

After beeswax has been injected, the inflammatory process as a rule has resolved completely by the end of one month or six weeks, and by this

time no indication of the injection remains. However, in two of ninety-five instances in which quantities of beeswax up to 0.5 cc. were injected into human beings subcutaneously, a small fibrous nodule about half the size of a pea was palpable beneath the skin for some months after the injection. In general, however, formation of fibrous tissue does not take place.

PENICILLIN FOR FURUNCULOSIS

QUESTION: In severe furunculosis how and in what doses is penicillin employed?

M.D.—Illinois

ANSWER: In a patient with severe furunculosis penicillin may be given in any dose desirable from 20,000 to 30,000 units every three to four hours or a single dose of 300,000 units may be injected each day for several days. In addition to this, of course, control of diabetes is one of the most important considerations as well as the possible administration of some of the sulfa drugs, preferably sulfadiazine, in a dose of 1 gm. every three or four hours for the first twenty-four hours followed by ½ gm. every three or four hours.

Lastly, the skin should be kept clean with frequent bathing with soap and water, followed by alcohol and local applications to some of the infected places.

MENIERE'S DISEASE

QUESTION: What is the proper dosage of potassium and which salts are used in the treatment of Meniere's disease? Is it necessary to limit fluid intake if salt is restricted?

M.D.—California

ANSWER: Potassium chloride and potassium nitrate are employed in the treatment of Meniere's disease. Talbott and Brown recommend the use of a 25 per cent aqueous solution of potassium chloride. One teaspoon contains about 1 gm. of salt and is given with water or other fluid six to eight times daily. A normal diet may be followed. Adson and Walsh recommend the use of 9 gm. of potassium nitrate (enteric coated tablets) daily for three days, then discontinued for two days, plus a low sodium diet. Ammonium chloride is also used. The treatment as outlined by Furstenberg, Lashmet and Lathrop consists of a low sodium diet and the administration of ammonium chloride, 3 gm. with each meal in capsules (six capsules each containing 7½ grains taken during the meal) daily for three days, then discontinued for two days. Water intake does not need to be restricted, but the excessive use of fluids is not advisable.

REFERENCES

Beckman, H.: Treatment in General Practice, ed. 5, Philadelphia, Saunders, 1945, p. 790.

Furstenberg, A. C., Lashmet, F. H., and Lathrop, F.: Meniere's symptom complex: medical treatment. Ann. Otol., Rhin & Laryng. 43:1034 (Dec.) 1934.

Talbott, J. H., and Brown, M. R.: Meniere's syndrome, acid-base constituents of the blood: treatment with potassium chloride. J.A.M.A. 114:125 (Jan. 13) 1940.

Walsh, M. N., and Adson, A. W.: Meniere's syndrome, medical vs. surgical treatment. J.A.M.A. 114:130 (Jan. 13), 1940.

AMYOTROPHIC LATERAL SCLEROSIS

QUESTION: I am now treating a patient who is suffering from amyotrophic lateral sclerosis. I would appreciate it if you would send me any information that you may have concerning this particular illness and its treatment.

M.D.—Maryland

ANSWER: Amyotrophic lateral sclerosis is a disease of the central nervous system of unknown causation, and up to the present no satisfactory treatment has been devised. Almost always the disease is relentlessly progressive, and terminates fatally. From a practical standpoint, it is sometimes confused with syphilitic amyotrophy. For that reason, we believe that examination of the cerebrospinal fluid in order to exclude neurosyphilis is indicated.

What Other Editors Think

Editorial Evaluation of Current Contributions To Medical Progress

AUTONOMIC BLOCKADE

In 1945 Acheson and Moe demonstrated that in animals the tetraethylammonium ion would block transmission of nerve impulses through autonomic ganglia. This has led to extensive investigations of the effect of this drug in man.

The drug is used in the form of the bromide or chloride and its pharmaceutical action in the experimental animal has seemed to be repeated in the tests in the human being. When administered parenterally to animals, the most prominent effect of the drug is its ganglionic blocking action. There is a rapid fall both in systolic and diastolic blood pressure which is not the result of the direct action of the drug upon the arterioles. Peripheral blood flow to the extremities is increased as demonstrated by exact skin temperature and blood flow determinations. In addition, there is dilation of the pupil, loss of accommodation, cessation of sweating, dry mouth, and postural hypotension for varying periods of time following the injection of the drug. Gastrointestinal motility is stopped and atony of the bladder is recorded as well.

The pain of angina pectoris and coronary thrombosis is obliterated following the injection of the drug in spite of a possible decrease in coronary blood flow and a definite further fall in blood pressure. Other types of visceral pain are likewise ameliorated. Clinically, Berry and his group could demonstrate no action of the drug in a sympathectomized extremity, whereas evidence of sympathetic block can be demonstrated in a normal control extremity in the same individual.

From work in the experimental animal, it seems clearly demonstrated that the site of action of the drug lies in the autonomic ganglion itself. This will produce then an "autonomic blockade" for varying periods of time.

In the presence of marked organic changes in the blood vessel wall, as in arteriosclerosis or thrombo-angiitis obliterans, the vessel may be incapable of undergoing dilation. However, if the blood vessel is capable of vasodilation (suggesting no organic changes in the blood vessel wall) certain disease states caused by vasospasm (which refers to an abnormal degree of vasoconstriction of the blood vessels) may be diagnosed. These are manifested clinically by the signs and symptoms of coldness, hyperhidrosis, mild cyanosis and pain. The new drug has been used to establish an "autonomic blockade" thus setting up a temporary paralysis of the ganglia of the autonomic nervous system to determine whether the disease state is on the basis of permanently damaged blood vessels or whether the functional element of vasospasm is responsible, with vascular structures which are essentially normal.

The clinical use of tetraethylammonium ion for diagnostic and therapeutic autonomic blockade has been carefully worked out. It is not without danger, however. Considerable effort must be given to establishing the proper dosage for the individual patient, using progressively larger test doses. The intravenous dosage ranges from 100 mg. to a maximum of 500 mg. (1 to 5 cc.). Injection is made over a period of several minutes, with constant observation of pulse volume and the general reaction of the patient. Any untoward reactions mean discontinuance of the drug immediately. The intramuscular route is not quite as rapid and is probably a little safer in general.

In elderly patients with advanced arteriosclerosis or in labile patients with functional vascular disease lesser amounts are required to produce the desired blockade. Experience with the reaction of the patient to the injection of the drug is found most helpful in subsequent administrations. It is very rapidly excreted and no cumulative effect of the drug has been reported. Daily injections

over a considerable period of time seem to be entirely safe, one patient having had as much as 46,000 mg., used over a period of six weeks.

The value of the drug seems to fall in general into three groups. As it is now understood it is not for use over long periods of time in the hypertensive patient. This must clearly be stated—that at this stage of our present knowledge it is not the treatment for hypertension.

The drug's first usefulness seems to be in differentiating those patients who have little organic vascular disease and whose problem is largely one of vasospasm with the deranged tissue metabolism incident to chronic tissue anoxia. Hence, it aids in selecting those who are satisfactory candidates for sympathectomy as a surgical procedure. On the other hand, even though the drug demonstrates hopeless organic changes in the blood vessel walls, nevertheless a considerable subjective and even clinical relief has been reported from its use. Its last action seems to be one of giving an effective instrument for investigating the functions of the autonomic nervous system in the human body. This latter phase is in progress quite extensively and with excellent results.

The Western Journal of Surgery, Obstetrics and Gynecology, Robert N. Rutherford, M.D., Executive Editor, p. 518, September 1947.

ALLERGY TO INFLUENZA VACCINES

Vaccines used for the prophylaxis of virus and rickettsial infections usually consist of suspensions of infected animal tissues in which the virus is either killed or attenuated. In recent years, technics have been developed for the propagation of many viral and rickettsial agents in the tissues or fluid cavities of embryonated hens' eggs.

The simplest virus vaccine and the one that is now used most extensively in human beings in this country is the one containing influenza A and B viruses. Since these viruses grow abundantly in the allantoic fluid of the developed egg, this fluid is the source of the virus that is used for the vaccine.

The virus is concentrated by various methods, which involve either adsorption by and elution from embryonic erythrocytes or a similar procedure using other adsorbing agents. Centrifugation and resuspension and, more recently, concentration and purification by means of methyl alcohol have been used in attempts to reduce the amount of egg protein in the final virus suspension. None of these methods have rendered the vaccines entirely free of such protein, however, although the last presumably removes all but an extremely small amount. Formalin is used to inactivate the viruses, and other preservatives are added before the vaccines are released for human use.

The possible effects of injections of influenza-virus vaccines in sensitizing the recipients to egg protein and in eliciting allergic reactions in children already sensitive to this protein were summarized recently by Ratner and Untracht. Studies of their own, in which such tests were done with influenza A and B vaccine in a group of 108 allergic children, were reported.

Definite sensitivity to egg white and to vaccine was found in 11 of the patients, but only 5 were regarded as "sensitive enough to warrant circumspection and caution in the use of the vaccine." It was calculated that serious egg allergenicity could be expected in about 1 in every 200 children, and probably somewhat less often in adults.

To safeguard the seriously sensitive persons, it is not sufficient to obtain a history of allergy to egg, for often this is vague. A test dose of vaccine should be given before each and every prophylactic injection, and perhaps a test should also be made with egg white. If both or either is strongly positive, the patient is seriously sensitive and vaccine should be withheld. Vaccine should be withheld unconditionally, if a systemic reaction results from the test dose.

Thirty-nine patients gave only suggestive reactions to one or more of the egg proteins. These children were mostly 8 to 13 years of age and were considered to have moderate to mild sensitivity, which at the time was probably not of clinical significance. Some of these suggestive reactors were discovered to be sensitive to formaldehyde and not to egg.

The authors expressed the belief that a history of allergy per se is of no significance, since allergic persons without specific sensitivity to egg protein are no likelier to have a reaction from the vaccine

than are nonallergic persons. Furthermore, they are of the opinion that a lack of history of this sensitivity to egg is of debatable value, as sensitivity was occasionally demonstrated in such persons by skin reactions and even by constitutional reactions to injected egg protein.

Ratner and Untracht do not mention the increased danger of reinjection in such cases, a possibility that should be seriously considered. The immunity following the injection of influenza vaccines is short-lived, and the danger of frequent reinjections must be weighed against the possible benefits. Two recent developments may help to minimize these dangers. The first has already been mentioned—the perfection of vaccines from which most of the protein has been removed. The second is the demonstration of antibody responses to single intracutaneous injections of 0.1 cc. of vaccine that are similar or superior to those resulting from single subcutaneous injections of 1 cc. of the same vaccine. Possibly intracutaneous vaccination will prove effective even with diluted virus, in which case the amount of foreign antigenic protein may be reduced still further and vaccination may then be undertaken repeatedly with safety. Only the results of a large and controlled experience will prove whether these possibilities are attainable.

The New England Journal of Medicine, Robert N. Nye, M.D., Managing Editor, Vol. 237, p. 64, 1947.

NURSING EDUCATION

WHENEVER a social situation becomes pressing we may look for the advocates of nostrums and cure-alls, often more deadly than the disease. The present shortage of nurses results from various causes, among which economic factors are of major importance.

It is not surprising—though it is unfortunate—that this situation has tempted various committees of eminent surgeons and internists to rush into the breach with the happy idea that the remedy can be found by shortening the nurses' training course and returning to the low standards which prevailed a quarter century ago.

The unfortunate thing about recent pronouncements of medical committees is their repercussions on the reputation of the medical profession itself. The prestige of the physician must rest on the respect which the public feels for the medical expert; and when the medical expert assumes the right to dictate in a field where he is not an expert, he destroys the confidence of the public in his wisdom in his own area.

Education is a highly technical problem, and the distinguished practitioner of medicine may be—and commonly is—a layman in the educational field. The subject of nursing education happens to have been explored in two exhaustive studies in which educators, nurses, hospital administrators, physicians, and public health experts cooperated. The reports of these studies have been universally accepted by all competent authorities. They rightly form the basis for our present program of nursing education. For the practitioner of medicine to ignore them is as ill-judged as it would be for a teacher to brush aside the accepted principles of medical science.

There is, however, one related aspect of the problem of nursing shortage on which the physician can, and should, make an important contribution. The training of the professional nurse is progressing along reasonably sound lines; and it has been found in all educational fields that the way to long-range increase in personnel is to raise rather than to lower standards.

There are, however, real possibilities of supplementing the work of the nursing profession by the employment of trained nursing attendants. How large the field may be for this type of subsidiary worker, and how that field should be defined, must be carefully studied. This is not a technical problem of education but a problem of administration. It should be analyzed by joint committees of health administrators and nurses in the public health field.

American Journal of Public Health, Vol. 37, p. 1046, August 1947.

New Drugs

Information published in this department has been supplied by the manufacturers of the products described

STREPTOMYCIN HYDROCHLORIDE SQUIBB

PURPOSE: Treatment of tularemia; all *H. Influenzae* infections; bacteremia and urinary tract infections caused by *E. coli, P. vulgaris, K. pneumoniae, A. aerogenes* and *Ps. aeruginosa;* bacterial meningitis caused by these organisms or by *B. paratyphosus*; dysentery caused by Shigella (and Salmonella) when resistant to sulfonamides.

DESCRIPTION: The dried hydrochloride salt of the antibiotic principal obtained from cultures of *Streptomyces griseus*. Potency expressed in terms of equivalent weight of the pure streptomycin base. Readily soluble in small amounts of pyrogen-free water or physiological saline solution in concentrations up to 250 mg. per cc.

INDICATIONS FOR USE: See Purpose.

DOSAGE AND ADMINISTRATION: Preferably intramuscularly, also intrathecally. Inravenous injection contraindicated. One to four grams a day depending upon the severity and type of infection, the patient's age, and the response.

HOW SUPPLIED: In two sizes of diaphragm-capped vials, containing the equivalent of 1.0 gm. or 2.0 gm. of the pure streptomycin base.

PRODUCER: E. R. Squibb & Sons, New York, N. Y.

"TYROZETS"

PURPOSE: Prompt antibacterial treatment of throat and mouth infections.

COMPOSITION: Each lozenge contains tyrothricin 1 mg. and benzocaine 5 mg.

DESCRIPTION: Tyrothricin demonstrates prompt antibacterial effect against gram-positive organisms commonly encountered in infections of the throat and mouth. Benzocaine provides a soothing analgesic effect and quickly relieves throat irritations and discomfort.

INDICATIONS FOR USE: Gram-positive infections of the throat and mouth, sore throats, following tonsillectomies and surgery of throat and mouth, throat irritations, prophylactic throat protection.

DOSAGE: One lozenge every three hours. Lozenge should be dissolved slowly in the mouth to insure an adequate concentration of tyrothricin in the saliva.

HOW SUPPLIED: Vials of 12 lozenges.

PRODUCER: Sharp and Dohme, Philadelphia, Pa.

DERMESTHETIC OINTMENT—CUTTER

PURPOSE: Immediate and prolonged relief from the itching of poison oak, poison ivy, industrial rashes, and other pruritic conditions.

DESCRIPTION: It combines benzyl alcohol, phenol and benzocaine to obtain triple-action anesthetic control of itching. Being greaseless, it can be removed easily and will not stain the skin or clothes.

INDICATIONS FOR USE: It is particularly valuable in retarding the spread of grease-soluble irritants, such as rhustoxins and oil-soluble industrial materials, which in dissolving tend to spread and increase the area of the rash. In addition to its anesthetic effect, Dermesthetic Ointment is bacteriostatic, reducing the danger of secondary infection.

PRODUCER: Cutter Laboratories, Berkeley 1, Calif.

THROMBIN, 1,000 UNITS, STERILE

PURPOSE: Blood coagulant.

DESCRIPTION: Thrombin is the natural blood clotting agent obtained from bovine blood as a sterile water-soluble white powder. Each vial contains:

Thrombin ..... 1,000 Units

INDICATIONS FOR USE: In inducing clot formation and thus controlling hemorrhage from small vascular structures to which ligatures and clamps cannot be applied.

ADMINISTRATION: Solutions of thrombin supplying 75 to 100 or more units per cc. are prepared by adding the calculated amount of sterile isotonic solution of sodium chloride or sterile distilled water to the dry sterile powder. These solutions may be applied direct to the bleeding surface. To secure hemostasis in brain tissue, meninges, or cut surface of any viscera, fibrin foam sponges or gelfoam (absorbable gelatin sponge) may be used to hold larger amounts of thrombin solution.

CAUTION: Thrombin *solutions may not be injected.*

HOW SUPPLIED: 30 cc. vial . . $1.00.

PRODUCER: The Upjohn Company, Kalamazoo 99, Mich.

INTERNATIONAL
MEDICAL ASSEMBLY
OF THE
INTERSTATE POSTGRADUATE
MEDICAL ASSOCIATION
OF NORTH AMERICA
KIEL AUDITORIUM ST. LOUIS, MO.
OCT. 14 to 17, 1947

Association Notes

Having a presidential get-together at the Assembly dinner of the 1947 meeting of the Interstate Postgraduate Medical Association in St. Louis are (from left): Dr. Carl F. Vohs, head of the St. Louis Medical Society and chairman of the St. Louis committee for the meeting; Dr. Herman L. Kretschmer, president of the Association, and Dr. James E. Paullin, retiring president.

Photo, Courtesy St. Louis Globe-Democrat

Dr. Edward L. Bortz (center), one of the speakers at the 1947 Assembly of the Interstate Postgraduate Medical Association, is shown with Dr. James E. Paullin (left), and Dr. Arthur G. Sullivan, managing director of the Association.

Photo, Courtesy St. Louis Star-Times

Frank G. Slaughter, M.D.

A Biographical Sketch

New conductor of "After Hours"

Dr. Frank G. Slaughter of Jacksonville, Florida, who takes over with this issue the column, AFTER HOURS, grew up on a farm in North Carolina and was graduated from Duke University at the age of 18, having become a member of Phi Beta Kappa at 17. He graduated from Johns Hopkins Medical School in 1930, "with no distinction except learning a new off-color joke every day for four years." From 1930-34 he was a member of the house staff at Jefferson Hospital, Roanoke, Virginia and was resident from 1932-34. He married Jane Mundy, a Roanoke nurse, in 1933; they have two children, Frank, Jr., 7, and Randy, 4.

In 1934 he moved to Jacksonville and became a member of the surgical staff of the Riverside Hospital, a group clinic. He became a Fellow of the American College of Surgeons in 1938 and was certified by the American Board of Surgery in 1940.

Entering active duty in the Army in July, 1942, as a major, he served three years at Camp Kilmer, New Jersey, in charge of surgery, sitting on disposition boards, and directing the activities of a debarkation hospital. Assigned as Commanding Officer of the U.S. Army Hospital Ship, Emily H. M. Weder in September, 1945, he was subsequently made Chief of the Surgical Service at the Station Hospital, Los Angeles Port of Embarkation when the ship was decommissioned. He was promoted to Lieutenant Colonel in March, 1944, and was discharged in March, 1946. He did not return to medical practice after his discharge.

Beginning to write fiction as a hobby in 1935, Dr. Slaughter sold $12 worth of his work in the first six years. His first novel, THAT NONE SHOULD DIE, was published in 1941 and was quite successful. It has been a best seller in England, Denmark, Norway and Sweden and is currently selling in France, Switzerland, Holland and Germany. There followed SPENCER BRADE, M.D., AIR SURGEON, BATTLE SURGEON, A TOUCH OF GLORY, and last year's national best seller, IN A DARK GARDEN. His latest novel, THE GOLDEN ISLE, is rapidly achieving a best seller status.

In 1946 he published a popular book on surgical progress, THE NEW SCIENCE OF SURGERY, and another on psychosomatic medicine, MEDICINE FOR MODERNS, has just appeared.

AFTER HOURS

By FRANK G. SLAUGHTER, M. D.

"The times are ominous indeed,
When quack to quack cries,
'Purge and bleed.' "

So WROTE William Cobbet of Benjamin Rush's vigorous treatment of yellow fever during the terrible eighteenth-century epidemic in Philadelphia. Rush, although temporarily routed by the newspaperman's attack, lashed back at Cobbet in the newspapers, in accordance with the custom of the times, and finally prosecuted him successfully for slander. A great hand himself with invective, Rush used many noms de plume, fairly deluging the newspapers with letters and the public with tracts urging his treatment and belaboring those who dared oppose him. So great was his influence from this and other reasons that Flexner wrote (*Doctors on Horseback*):

Until the middle of the nineteenth century most men who died on the North American continent had little Rushes standing by their bedside with lancets in one hand and vials of calomel in another. For their master taught heroic remedies. Nature was a devil to be kept out of the sickroom by a doctor who battled every symptom with a flaming sword.

BENJAMIN RUSH was also a master of public relations, with which we are very much concerned today, even though our methods must, perforce, be somewhat different. Sadly we must admit that medical practice is no longer as exciting as it used to be. Boredly dispensing sulfadiazine, penicillin, and streptomycin, endlessly removing the appendix, gallbladder, and uterus, who among us does not long for the old days when medicine was indeed heroic and public relations were something one could set one's teeth into. Perhaps we shall never again know the joy of girding up our loins, taking scalpel in hand, and supported by the *mite* Mercury, riding forth to joust with death. Nor may we any more, disagreeing with our colleagues as to the respective values of stump water and dried snakeskins, violently lay hands upon our pens and exorcise these demons from the profession with vitriolic words, perhaps smiting them, as Cobbet did the followers of Rush, with the epithet of "clyster-pipe Dicks," or again telling sly little stories such as:

The Frenchman taught his horse to live without food, but just as his education was completed, the poor thing died. So it is with the patients of the bleeders; by degrees they accustom themselves to live without blood, but the moment the process is completed, they expire.

Medicine has indeed fallen upon evil days when such pleasures are denied us.

BENJAMIN RUSH not only pointed the way in public relations, he antedated by some hundred and seventy-five years the present fad of psychosomatic medicine. William Cullen of Edinburgh had already departed from the teachings of the master, Boerhave, and devised a system of his own. "Cullen contended," Flexner writes, "that a physician should control his observations by his theory (thus antedating considerably Russian propaganda methods), for the mind is a more noble instrument than the eye. He demonstrated that . . . all diseases were due to disorders of the nerve force; even gout was a neurosis." Rush went him one better and established only one disease and one source. Could this be the Libido of the psychosomatists?

BUT SUCH PRECEDENCE of theory over observation was dangerous, even for Rush, as is illustrated by a passage quoted by C. K. Drinker from Rush's "Experiments and Observations on the Mineral Waters of Philadelphia, Abingdon, and Bristol, Pa." When read before the American Philosophical Society in 1773, Rush described a medicine spring in Philadelphia, which he recommended very highly, as follows:

This water is found in a well, twenty-six feet deep, in Sixth Street near the corner of Chestnut Street, on a lot of ground belonging to John Lawrence, Esq. The water, when it first comes from the pump, has a slightly faetid smell, is somewhat turbid, and after standing a few hours exposed to the air, deposits a yellow sediment. The smell of the water is increased by rest. It has a strong ferruginous taste.

One of the later owners of the pamphlet added this satirical margin note:

The water lost its virtue within a few months after investigation owing to the contents of a neighboring necessary (privy). The well being exhausted on account of the quantity drunk, it was found the well communicated with the necessary which gave the smell and sediment.

Life was truly exciting in those days, one of the hazards being drowning by falling in cesspools, several cases of which were reported.

WE HAVE A LOT TO LEARN, though, from Rush and the followers of the supercharged Libido, for both preach the danger of bottled-up emotions, and Rush showed the value of releasing them in words and with the pen. The disciples of Mind-and-Body tell us that the high incidence of ulcer and coronary disease among physicians results from the poor outlets for emotions provided by modern living and medical practice. Maybe it would help us to hark back to some of the customs of our medical forbears, who poured out their scorn freely upon the heads of luckless brethren, instead of muttering darkly in our beards at medical meetings and over the lunch table. And what better solace for injured self-respect than advertising our willingness to cure all comers for the small price of fifty cents a visit? We might live to a ripe old age and, spooning pap to toothless gums, gripping our wheelchairs with palsied hands, already, alas, beyond help of testosterone or wimpus, spend our years serenely cackling, "Those were the good old days." Truly an inviting prospect.

AFTER HOURS CONTINUED

MAYBE YOU HAVEN'T HEARD DEPARTMENT . . . About the aging Lothario who was courting a beautiful chorus girl. The chorine, feeling that she should be on the up and up with the old boy (this part doesn't make sense but that's the way it was told to us), warned him that her heart belonged to another. "That's all right," the oldster replied, "I never aspired *that high.*"

Or the man who had female trouble; he was married to a nagging wife. And also anent the institution of marriage, a philosophical friend of ours says, "You aren't married to a woman more than six weeks before she thinks she's as good as you are."

SPEAKING OF . . . the Male Hormone, perhaps you've noticed that the pharmaceutical companies have now lowered prices on testosterone some twenty per cent. Any day now we can expect to see the startling news:

"Now you can be a fifth more potent for the same price." What other staff (how did that phallic symbol creep in here?) of life is now twenty per cent cheaper? Is this a symbol of a new era? Are prices finally beginning to fall? We think not. It can only mean, according to the well known laws of supply and demand, that the need for this panacea for human frailties has decreased. Ergo, human potency is increasing. Oh glorious thought! Oh happy prospect! Now millions of males, imbued with new life, can gird up their loins and set off in search of "Modern Woman; The Lost Sex."

And finding her . . . Egad! We're off to the corner drugstore for some hormone pills and then the chase. . . . Twenty per cent more! . . . Yoicks! Yoicks! . . . Tallyho-o-o-o!

INTERNATIONAL ASSEMBLY

Cleveland Auditorium

Cleveland, Ohio

November 9 to 12, inclusive, 1948

Thirty-third Year

POSTGRADUATE COURSES

Complete information may be obtained by writing directly to the Institutions offering the courses.

Selected Postgraduate Continuation Courses for Practicing Physicians—Beginning January and February, 1948

ALLERGY

Institution	*Title of Course*	*Schedule of Course*	*Registration Fee and/or Tuition*
New York Postgraduate Medical School, 303 E. 20th St., New York 3	Allergy	Jan. 9—Feb. 27, part time	$ 25.00
Columbia University, 630 West 168th St., New York 32 At: Mount Sinai Hospital	Allergy	Feb. 17-25, M. through S., mornings	40.00

ANESTHESIOLOGY

New York Medical College, 5th Ave. at 106th St., New York	Clinical Anesthesiology	Three months, arranged, full time	200.00
Tufts College Medical School, 30 Bennet St., Boston 4, Mass.	Anesthesiology II	One month, arranged	60.00
New York University College of Medicine, 477 1st Ave., New York 16	Regional Anesthesia	Jan 5, intensive course, 2 weeks	200.00
	Anesthesiology	Six months, arranged	500.00

CARDIOVASCULAR DISEASES

New York Postgraduate Medical School, 303 E. 20th St., New York 3	Peripheral Vascular Diseases	Jan. 6—Feb. 24. Part time	30.00
Columbia University, 630 West 168th St., New York 32	Cardiovascular Diseases	Feb. 13—March 29 Afternoon sessions	110.00
At: Mount Sinai Hospital	Bedside clinics in Heart Disease	Feb. 16—March 29, part time	30.00
At: Montefiore Hospital	Advanced Cardiology	Jan. 27—June 28, part time	250.00
New York Medical College, 5th Ave. at 106th St., New York.	Peripheral Vascular Disease	Two months, arranged, part time	200.00

CHEST DISEASES

New York Postgraduate Medical School, 303 E. 20th St., New York 3	Acute and Chronic Diseases of the Chest	Jan. 8—Feb. 26, part time	45.00
Columbia University, 630 West 168th St., New York 32 At: Montefiore Hospital	Diseases of the Chest	Jan. 2—May 14, part time	60.00
	Physiologic Therapy in Respiratory Diseases	Jan. 26-31, part time	40.00
New York Medical College, 5th Ave. at 106th St., New York	Pulmonary Tuberculosis	One month, arranged	150.00

POSTGRADUATE COURSES

Selected Postgraduate Continuation Courses for Practicing Physicians—Beginning January and February, 1948

DERMATOLOGY AND SYPHILOLOGY

Institution	*Title of Course*	*Schedule of Course*	*Registration Fee and/or Tuition*
New York Postgraduate Medical School, 303 E. 20th St., New York 3	Training for Specialization in Dermatology and Syphilology	Three years, full time	800.00
University of Southern California School of Medicine, 1200 N. State St., Los Angeles 33	Dermatology and Syphilology	Jan., 12 weeks, part time	50.00
New York University College of Medicine, 477 1st Ave., New York 16 At: Beth Israel Hospital	Dermatology	Jan., one month, part time	30.00

DIABETES

New York Postgraduate Medical School, 303 E. 20th St., New York 3	Diabetes Mellitus, Nephritis and Hypertension	Jan. 8—Feb. 26, part time	45.00
Columbia University, 630 W. 168th St., New York 32 At: Mount Sinai Hospital	Diseases of Metabolism	Feb. 26—March 9, part time	40.00

ELECTROCARDIOGRAPHY

Tufts College Medical School, 30 Bennet St., Boston 11, Mass.	Electrocardiography II	Jan. 12-14, full time	25.00
Columbia University, 630 W. 168th St., New York 32	Elementary Electrocardiography	Jan. 26-31, part time	60.00
At: Mount Sinai Hospital	Electrocardiography	Twelve weeks, winter, part time	40.00
New York University College of Medicine, 477 1st Ave., New York 16	Practical Electrocardiography for the practicing physician	One week, winter, part time	65.00

ENDOCRINOLOGY

New York Postgraduate Medical School, 303 E. 20th St., New York 3	Diseases of the Thyroid and other Endocrine Glands	Jan. 9—Feb. 27, part time	45.00

ENDOSCOPY

New York Postgraduate Medical School, 303 E. 20th St., New York 3	Cystoscopy and Endoscopy	Jan. 5—Feb. 16, 15 sessions of two hours each	75.00

GASTROENTEROLOGY

New York Postgraduate Medical School, 303 E. 20th St., New York 3	Gastroenterology	Jan. 7—Feb. 25, part time	45.00
University of Southern California School of Medicine, 1200 N. State St., Los Angeles 33	Advanced Gastroenterology	Jan. 7, twelve weeks, part time	50.00
Columbia University, 630 West 168th St., New York 32 At: Mount Sinai Hospital	Gastrointestinal Diseases	Feb. 2—March 10	80.00
At: Columbia Presbyterian Medical Center	Gastroscopy	Three afternoons weekly for two consecutive months. (Open to physicians experienced in gastroenterology or surgery of the gastrointestinal tract)	250.00
New York University College of Medicine, 477 1st Ave., New York 16	Gastroenterology Gastroenterology	Seven weeks, winter, part time Eight weeks, winter, part time	60.00 65.00
New York Medical College, 5th Ave. at 106th St., New York	Gastroscopy	Two weeks, arranged	200.00

POSTGRADUATE COURSES

Selected Postgraduate Continuation Courses for Practicing Physicians—Beginning January and February, 1948

HEMATOLOGY

Institution	*Title of Course*	*Schedule of Course*	*Registration Fee and/or Tuition*
New York Postgraduate Medical School, 303 E. 20th St., New York 3	Clinical Hematology	Jan. 7—Feb. 25, part time	30.00
University of Southern California School of Medicine, 1200 N. State St., Los Angeles 33	Hematology	Jan. 5, twelve weeks, part time	50.00
Columbia University, 630 W. 168th St., New York 32			
At: Mount Sinai Hospital	Hematology	Feb. 26—April 3.	65.00
New York University College of Medicine, 477 1st Ave., New York 16	Hematology	Winter, part time	50.00

MEDICINE, GENERAL

Tufts College Medical School, 30 Bennet St., Boston 11, Mass.	Review of Basic Sciences	Jan. 5—Feb. 28	200.00
	Clinical Medicine	Jan. 5-31—Feb. 2-28, mornings	60.00 per month
	Internal Medicine	Three months	250.00
		Six months	500.00
		Nine months	750.00
Columbia University, 630 West 168th St., New York 32			
At: Mount Sinai Hospital	Symposium on Internal Medicine	Feb. 2—April 3, full time	350.00
	Diseases of the Liver	Feb. 2-11	35.00
New York University College of Medicine, 477 1st Ave., New York 16	Internal Medicine	Three to twelve months, full time	600.00 for 12 months
New York Medical College, 5th Ave. at 106th St., New York	Internal Medicine	Full time	
		One month	150.00
		Two months	300.00
New York Postgraduate Medical School, 303 E. 20th St., New York 3	Seminar in Internal Medicine	Jan. 5—Feb. 27	300.00
	Psychological Aspects of Internal Medicine	Jan. 9—Feb. 27, part time	25.00
University of Southern California School of Medicine, 1200 N. State St., Los Angeles 33	Clinical Review of Internal Medicine	Jan. 5, twelve weeks, full time	250.00
	Internal Medicine	Jan. 5, nine months, full time	750.00
	Recent Advances in Diagnosis and Treatment	Jan., twelve weeks, part time	50.00
	Recent Advances in Internal Medicine	Jan., twelve weeks, part time	50.00

NEUROLOGY AND PSYCHIATRY

University of Southern California School of Medicine, 1200 N. State St., Los Angeles 33	Psychosomatic Medicine	Jan., twelve weeks, part time	50.00
Tufts College Medical School, 30 Bennet St., Boston 11, Mass.	Psychiatry	One or two months, arranged	100.00
New York Medical College, 5th Ave. at 106th St., New York	Neurology	One month, arranged, full time	200.00

POSTGRADUATE COURSES

Selected Postgraduate Continuation Courses for Practicing Physicians—Beginning January and February, 1948

OBSTETRICS AND GYNECOLOGY

Institution	*Title of Course*	*Schedule of Course*	*Registration Fee and/or Tuition*
Columbia University, 630 West 168th St., New York 32 At: Margaret Hague Maternity Hospital	Obstetrics, Internship Training	Three months, full time	350.00
	Obstetrics, Observation Course	One month, full time	100.00
New York University College of Medicine, 477 1st Ave., New York 16	Obstetrics and Gynecology	Three months to a year, arranged, full time	600.00 for 12 months
University of Maryland School of Medicine, Lombard and Greene St., Baltimore	Gynecology and Obstetrics "A"	Review for the general practitioner, twelve weeks, full time	150.00
	Gynecology, Orcology and Female Urology "B"	Ten weeks, full time	125.00

OPHTHALMOLOGY

Columbia University, 630 West 168th St., New York 32 At: Montefiore Hospital	Elementary Ophthalmoscopy	Jan. 5—March 1, part time	30.00

OTOLARYNGOLOGY

University of Southern California School of Medicine, 1200 N. State St., Los Angeles 33	Otolaryngology	Feb., twelve weeks, full time	250.00
New York Medical College, 5th Ave. at 106th St., New York	Otolaryngology Procedures	One month, arranged	100.00

OTOLOGY

Northwestern University School of Medicine, Chicago 11, Illinois At: Ward Memorial Bldg.	Audiology and End-aural Otologic Surgery	Jan.—April, four weeks	500.00

PATHOLOGY

Columbia University, 630 West 168th St., New York 32	Surgical Pathology	Jan. 24—May 1, part time	100.00
University of Maryland School of Medicine, Lombard and Greene St., Baltimore	Pathology "A"	Full time, 1 to 3 or more years	300.00
	Pathology "B"	Full time, 6 months minimum	150.00
	Pathology "C"	Full time, 6 months (designed to aid in meeting the requirements of the specialty boards in neurological sciences)	200.00 plus $10 lab fee

POSTGRADUATE COURSES

Selected Postgraduate Continuation Courses for Practicing Physicians—Beginning January and February, 1948

PEDIATRICS

Institution	*Title of Course*	*Schedule of Course*	*Registration Fee and/or Tuition*
New York Postgraduate Medical School, 303 E. 20th St., New York 3	Clinical Pediatrics	Jan. 5-31	150.00
	Practical Clinical Pediatrics (Open to those who have had the first course)	Feb. 2-28	125.00
	Symposium on Recent Advances in Pediatrics	Feb. 9-14	60.00
Tufts College Medical School, 30 Bennet St., Boston 11, Mass.	Clinical Pediatrics	Jan. 5-31	60.00
Columbia University, 630 West 168th St., New York 32			
At: Mount Sinai Hospital	Clinical Pediatrics	Feb. 3—April 15, part time	80.00
New York University College of Medicine, 477 1st Ave., New York 16	Pediatrics	Eight weeks, winter, part time	50.00
New York Medical College, 5th Ave. at 106th St., New York	Clinical Pediatrics	Arranged One month Three months Six months Nine months	 150.00 250.00 450.00 650.00

PROCTOLOGY

Tufts College Medical School, 30 Bennet St., Boston 11, Mass.	Proctology III	Jan. 5-31 and Feb. 2-28, mornings	100.00 each period
New York University College of Medicine, 477 1st Ave., New York 16	Proctology	Eight weeks, winter, part time	125.00

RADIOLOGY

American College of Radiology, 20 North Wacker Drive, Chicago 6	Radiology	One week at various cities throughout the year	50.00
Columbia University, 630 West 168th St., New York 32			
At: Columbia Presbyterian Medical Center	Radiology	Feb. 25—April 23, part time	25.00
New York Medical College, 5th Ave. at 106th St., New York	Diagnostic Roentgenology	Arranged	150.00
	Radium and Roentgen Therapy	Arranged	150.00

VENEREAL DISEASES

University of Southern California School of Medicine, 1200 N. State St., Los Angeles 33	Modern Treatment of Syphilis	Jan. 8, twelve weeks, part time	50.00

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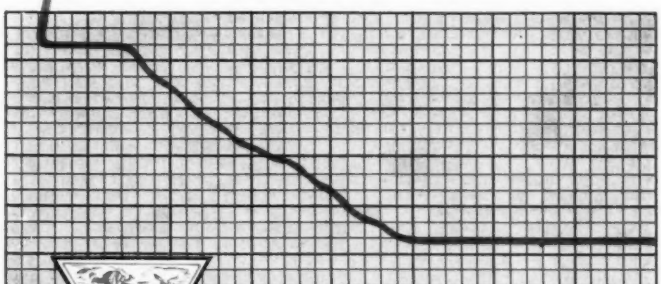

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